FireProof

Application Switch and Fast Ethernet Platforms

Software Version: 2.20

radware

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CAUTION
Due to the risks of electrical shock, and energy, mechanical, and fire hazards, any procedures that involve opening panels or changing components must be performed by qualified service personnel only.
To reduce the risk of fire and electrical shock, disconnect the instrument from the power line before removing cover or panels.

SERVICING
Do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. There are no user-serviceable parts inside the unit chassis.

HIGH VOLTAGE
Any adjustment, maintenance, and repair of the opened instrument under voltage should be avoided as much as possible and, when inevitable, should be carried out only by a skilled person who is aware of the hazard involved. Capacitors inside the instrument may still be charged even if the instrument has been disconnected from its source of supply.

GROUNDING
Before connecting this instrument to the power line, the protective earth terminals of this instrument must be connected to the protective conductor of the (mains) power cord. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact.
The protective action must not be negated by use of an extension cord (power cable) without a protective conductor (grounding).

FUSES
Make sure that only fuses with the required rated current and of the specified type are used for replacement. The use of repaired fuses and the short-circuiting of fuse holders must be avoided. Whenever it is likely that the protection offered by fuses has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

LINE VOLTAGE
Before connecting this instrument to the power line, make sure the voltage of the power source matches the requirements of the instrument.

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NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules and EN55022 Class A, EN 50082-1 For CE MARK Compliance. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FireProof/DC

If you purchased one of these devices, make note of the following additional instructions.

RESTRICT AREA ACCESS

This device should only be installed in a restricted access area.

INSTALLATION CODES

This device must be installed in accordance with the National Electrical Code, Articles 110-16, 110-17, and 110-18 and the Canadian Electrical Code, Section 12.

OVERCURRENT PROTECTION

A readily accessible listed branch-circuit over current protective device 15 A must be incorporated in the building wiring.

☞ **Caution - To Reduce the Risk of Electrical Shock and Fire**

1. All servicing should be undertaken only by qualified service personnel. There are not user serviceable parts inside the unit.
2. DO NOT plug in, turn on or attempt to operate an obviously damaged unit.
3. Ensure that the chassis ventilation openings in the unit are NOT BLOCKED.
4. Replace a blown fuse ONLY with the same type and rating as is marked on the safety label adjacent to the power inlet, housing the fuse.
5. DO NOT operate the unit in a location where the maximum ambient temperature exceeds 40 degrees C.
6. Be sure to unplug the power supply cord from the wall socket BEFORE attempting to remove and/or check the main power fuse.

☞ **Attention: Pour Reduire Les Risques d'Electrocution et d'Incendie**

1. Toutes les opérations d'entretien seront effectuées UNIQUEMENT par du personnel d'entretien qualifié. Aucun composant ne peut être entretenu ou remplacé par l'utilisateur.
2. NE PAS connecter, mettre sous tension ou essayer d'utiliser un ensemble qui est défectueux de manière évidente.
3. Assurez vous que les ouvertures de ventilation du châssis NE SONT PAS OBSTRUÉES.
4. Remplacez un fusible qui a sauté, SEULEMENT par un fusible du même type et de même capacité, comme indiqué sur l'étiquette de sécurité proche de l'entrée de l'alimentation qui contient le fusible.
5. NE PAS UTILISER l'équipement dans des locaux dont la température maximale dépasse 40°C.
6. Assurez vous que le cordon d'alimentation a été déconnecté AVANT d'essayer de l'enlever et / ou vérifier le fusible de l'alimentation générale.

☞ **Maβnahmen zum Schutz vor elektrischem Schock und Feuer**

1. Alle Wartungsarbeiten sollten ausschlieβlich von geschultem Wartungspersonal durchgeführt werden. Keine im Gerät befindlichen Teile dürfen vom Benutzer gewartet werden.
2. Offensichtlich defekte oder beschädigte Geräte dürfen nicht angeschlossen, eingeschaltet oder in Betrieb genommen werden.
3. Stellen Sie sicher, dass die Belüftungsschlitze am Gerät nicht blockiert sind.
4. Ersetzen Sie eine defekte Sicherung ausschlieβlich mit Sicherungen laut Sicherheitsbeschriftung.
5. Betreiben Sie das Gerät nicht in Räumen mit Temperaturen über 40°C.
6. Trennen Sie das Netzkabel von der Steckdose bevor Sie die Hauptsicherung prüfen oder austauschen.

ABOUT THIS GUIDE

Chapter 1\ Introducing FireProof
This chapter introduces Radware's FireProof product. FireProof is a dynamic load balancing system for effective management of traffic.

Chapter 2 \ Installing FireProof
This chapter describes FireProof setup and Configware management software installation.

Chapter 3 \ Configuring FireProof
This chapter describes how to configure FireProof to your requirements, using the Configware management software.

Chapter 4 \ Monitoring FireProof Performance
This chapter describes how to view detailed performance graphs, which help monitor FireProof performance.

Appendix A \ Example Configurations
This Appendix provides examples of FireProof configurations.

Appendix B \Troubleshooting
This Appendix provides troubleshooting solutions to some common FireProof problems.

Appendix C \ ASCII Command Line Interface
This Appendix defines the CLI for FireProof.

APPENDIX D \ Software License Upgrade
This appendix provides the procedures required to upgrade your software, using either Configware or ASCII CLI.

Glossary

This glossary provides explanations of terms and concepts used in network configurations.

CONTENTS

Chapter 1 - Introducing FireProof (FP) **1-1**
- The Problem 1-2
- The Solution 1-2
- FireProof Network Design 1-3
- FireProof Entry Level Product 1-3

Chapter 2 - Installing FireProof **2-1**
- Checking the Contents 2-2
- Mounting the Device 2-2
- Connecting FireProof to Your Network 2-3
  - AC Power Connection 2-3
  - ASCII Terminal (Serial) Connection 2-3
  - LAN Connections 2-4
- Configuring FireProof IP Host Parameters 2-5
- FireProof Specifications and Requirements 2-9
  - Hardware (Fast Ethernet Platform) 2-9
  - Hardware (Application Switch Platform) 2-9
  - LAN Interfaces (Fast Ethernet Platform) 2-9
  - LAN Interfaces (Application Switch Platform) 2-10
  - Hardware Requirements 2-10
  - Software Requirements 2-10
- Installing Configware Management Software 2-11

Chapter 3 - Configuring FireProof **3-1**
Getting Started 3-2
Running Configware 3-2
Using Buttons 3-3
Permanently Adding Devices to Configware 3-3
Connecting to a Device 3-7
Zoom View 3-8
Viewing Traps 3-8
Setting Up a VLAN 3-12
Creating VLANs 3-13
Configuring VLAN Parameters 3-14
Setting Interface Addresses and IP Router Options 3-16
Setting Up Firewalls 3-19
Configuring Firewalls 3-20
Creating Virtual IP Addresses 3-22
Mapping NAT Addresses to Virtual IP Addresses 3-24
Smart NAT 3-25
Creating Rules for Port Connection 3-31
Configuring Application Aging 3-32
Configuring Firewall Grouping 3-34
Full Path Health Monitoring 3-38
Controlling Traffic to Newly Booted Firewalls 3-39
Viewing Active Clients 3-40
Global Configuration 3-41
Setting Up Redundant FireProof Devices 3-46
Configuring IP Router Redundancy 3-47
Configuring Mirroring 3-49
Configuring a Remote Virtual IP Address 3-51
Defining Load Balancing Algorithms 3-52
Configuring Router Settings 3-55
Adjusting Operating Parameters 3-56
Configuring Interface Parameters 3-57
RIP Protocol Parameters 3-58
RIP Interface Parameters 3-60
OSPF Protocol Parameters 3-61
OSPF Interface Parameters 3-63
OSPF Area Parameters 3-65
OSPF Link State Database 3-66

OSPF Neighbor Table 3-67
Configuring the Router 3-68
ARP Addresses 3-69
Setting Up Security 3-72
Configuring Management Station Access 3-72
Setting Physical Port SNMP Restrictions 3-73
Configuring Bridge Settings 3-75
Bridge Operating Parameters 3-75
Bridge Forwarding Nodes 3-76
Configuring Services 3-78
Configuring Polling 3-78
Changing Community Names 3-79
Syslog Reporting 3-79
Event Log 3-80
Getting Device Information 3-81
Viewing Interface Parameters 3-82
Resetting the Device 3-83
Setting Device Global Parameters 3-84
Device Tuning 3-86
Configuring Via File 3-89
Setting Up Application Security 3-92
Configuring Bandwidth Management (BWM) 3-96
Viewing Active Policies 3-99
Modifying Policies 3-100
Modifying Services 3-105
Viewing and Modifying Differentiated Services 3-110
Updating Software 3-113

Chapter 4 - Monitoring FireProof Performance 4-1
Element Statistics 4-2
IP Interface Statistics 4-9
Firewall Statistics 4-11
Policy Statistics 4-13
Port Statistics 4-15

Appendix A - Example Configurations **A-1**
Example 1: Simple FireProof Configuration A-2
Example 3: One Leg (Lollipop) Configuration A-6
Example 4: Typical FireProof Configuration A-8
Example 5: Redundant FireProof Configuration A-11
Example 6: Redundant FireProof Configuration Using VLAN A-14
Example 7: DMZ Support with Port Connectivity Rules A-17
Example 8: Application Grouping with FireProof A-19
Example 9: QoS used for Access Control A-21
Example 10: Bandwidth Management A-25
Example 11: Application Security A-29

Appendix B - Troubleshooting **B-1**

Appendix C - ASCII Command Line Interface **C-1**

Appendix D - Software License Upgrade **D-1**

Glossary **G-1**

Index **I-1**

Introducing FireProof (FP)

FireProof is a dynamic load balancing system for effective management of traffic on multiple firewalls and other VPN and transparent devices. Based on technologies of the award-winning Radware Web Server Director™ family of IP traffic managers, FireProof greatly improves firewall performance while maximizing uptime.

An ideal solution for large organizations that require top firewall performance, Radware's FireProof system offers powerful load balancing and fault tolerance capabilities, which together ensure the highest degree of availability and an effective growth path.

This chapter contains the following information:

- **The Problem**, page 1-2.
- **The Solution**, page 1-2.
- **FireProof Network Design**, page 1-3.
- **FireProof Entry Level Product**, page 1-3.

The Problem

Generally, firewalls have a limited traffic load capacity. To accommodate traffic growth, organizations can either install the existing firewall on a more powerful machine or add more firewall devices. However, these solutions can prove to be problematic.

Installing a firewall on a more powerful machine is costly and does not fully solve capacity related problems, since the new firewall will eventually reach its maximum growth potential. Additionally, a single firewall is a single point of failure, causing an interruption in service when the firewall is busy or down.

Organizations encounter numerous problems when installing multiple firewalls. First, different client groups must be configured, which is a time-consuming procedure. Furthermore, multiple points of failure are created with the addition of each firewall. Since the traffic load is not dynamically shared between units, the firewalls are not used optimally. Finally, to achieve fault tolerance and redundancy between firewalls, hot standby, or idle, units must be deployed on the network.

The Solution

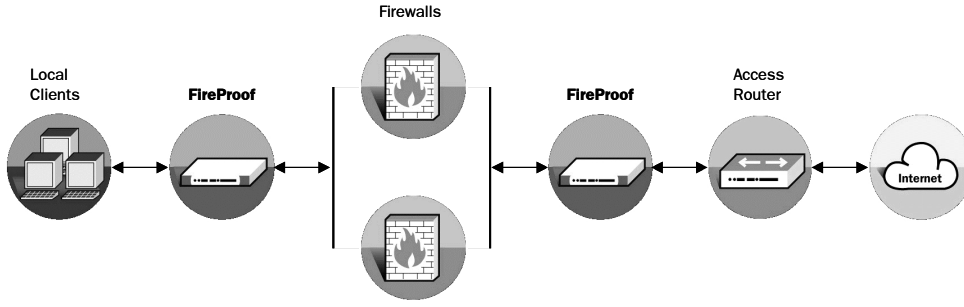
Radware's FireProof system answers the challenges of firewall performance and availability by providing load balancing and fault tolerance between all firewall units. In addition Radware has designed the SynApps Architecture[1] which provides the following solutions:

- Health monitoring
- Traffic re-direction
- Bandwidth management
- Application security

Using this architecture, FireProof maximizes your site's performance, providing a high level of service at all times.

[1] The SynApps architecture is only available in the Application Switch platform.

The following diagram represents a typical FireProof configuration:



FireProof Network Design

FireProof is designed to load balance IP traffic between a set of firewall machines. The firewalls may be from different vendors. To ensure data flow consistency the security rules should be identical.

- All traffic must physically travel through the FireProof unit. This includes traffic to and from the firewalls. If configured in routing mode, the administrator must ensure that the IP address of FireProof is the default gateway of all load balanced IP packets traveling to and from the firewalls.

- FireProof keeps track of the packets traveling from the local network to the Internet, and from the Internet to the local network.

FireProof Entry Level Product

Radware introduces the FireProof Entry Level product. This is a basic model of the FireProof. It supports all functionalities of the FireProof family and only differs with regard to its limitations.

Installing FireProof

This chapter describes how to setup FireProof and install Configware, Radware's management software. If you prefer to use ASCII CLI, refer to Appendix C for a full list of commands.

This chapter is divided into the following sections:

- **Checking the Contents**, page 2-2.
- **Mounting the Device**, page 2-2.
- **Connecting FireProof to Your Network**, page 2-3.
- **Configuring FireProof IP Host Parameters**, page 2-5.
- **FireProof Specifications and Requirements**, page 2-9.
- **Installing Configware Management Software**, page 2-11.

Checking the Contents

Before beginning the hardware installation, open the box and check that the following components are included:

- FireProof device
- Configware Management Software CD Rom
- User's Manual
- One power cable (Only for countries using 110v power supply)
- One serial cable
- Two cross cables (Application Switch platform only)
- A set of mounting brackets

If you are missing any of the above components, please contact your FireProof reseller.

Mounting the Device

FireProof can be either racked-mounted or mounted on a tabletop. The package includes brackets to enable rack-mounting of the device. Rubber feet are attached to the bottom of the device to enable tabletop mounting.

Note: After mounting, ensure that there is adequate airflow surrounding the device.

☞ **To rack-mount the device:**

1. Attach one bracket to each side of the device, using the screws provided.
2. Attach the device to the rack with the mounting screws.

Connecting FireProof to Your Network

After you have mounted the device, you must connect the cables to your device. The following connections should be completed, in this order:

- AC Power Connection
- ASCII Terminal (Serial) Connection
- LAN Connections
- Configuring the IP Host Parameters

AC Power Connection

The device should be supplied with AC power via a 1.5m (or 5 foot) standard power cable.

☞ **To connect the AC power connection:**

1. Connect the power cable to the main socket, located on the rear panel of the device.
2. Connect the power cable to the grounded AC outlet.

ASCII Terminal (Serial) Connection

The serial port connector varies depending on the platform of your device, as follows:

Fast Ethernet:	The serial port connector is a 9-pin connector, which is connected to the rear panel.
Application Switch:	The serial port connector is a 9-pin connector, which is connected to the front panel.

☞ **To make the ASCII terminal connection:**

1. Connect the serial port connector to the front panel.
2. Connect the other end of the serial port connector cable to your computer.
3. Access **HyperTerminal**.
4. From the *HyperTerminal* opening window, select the **File** menu, then **Properties**,

Or
Click the **Properties** icon in the toolbar. The *New Connection Properties* dialog box is displayed.

5. Click **Configure**. The *Properties* dialog box containing the **Port Settings** tab is displayed.
6. Verify that the fields are set as follows:
   - **Bits per second:** 19200
   - **Data bits:** 8
   - **Parity:** None
   - **Stop bits:** 1
   - **Flow Control:** None

   Note: When using Microsoft's HyperTerminal program, Flow Control should be set to none.

7. Turn on the power to the unit. If the device is connected and operating properly, the **PWR** and **System OK** indicators on the front panel are lit continuously.

LAN Connections

Use a standard UTP or STP cable to connect FireProof to the LANs. The cables used differs in each platform of the device, as follows:

Fast Ethernet:	In all the ports, a 10/100BaseT cable can be used.
Application Switch:	In eight of the ports, a 10/100BaseT cable can be used, and in two ports, a 1000BaseSX cable must be used.

☞ **To connect a FireProof port to a network LAN:**

1. Connect a standard UTP or STP cable to the port interface, located on the front panel.
2. Connect the other end of the cable to the LAN switch.

Configuring FireProof IP Host Parameters

FireProof IP host parameters enable an SNMP Network Management Station (NMS) to establish communication with the device.
The manual configuration of the device differs depending on the platform, therefore this procedure is divided into two parts. The first procedure, see below, is applicable to the Application Switch platform, and the second procedure, see page 2-8, is applicable to the Fast Ethernet platform.

Note: All other FireProof parameters are configured using Radware's Configware software.

☞ **To manually configure FireProof IP host parameters in the Application Switch platform:**

1. Ensure that the ASCII terminal is connected to the device.
2. Turn on the power to the device.
3. If you require to access the command line, press any key within three seconds of the boot up. The following command line is displayed:

   ```
   ?    print this list
   @    boot (load and go)
   e    print fatal exception
   w    download via xmodem
   q    erase configuration from flash
   u    download to secondary boot via xmodem
   r    clear Log file
   ```

   If you do not require to access this command line, the *Startup Configuration* window is automatically displayed.

4. Select the @ symbol to access the *Startup Configuration* window. The window is displayed, as shown next page.

```
Startup Configuration

0. Exit
1. IP address
2. IP subnet mask
3. Port number
4. Default router IP address
5. RIP version
6. OSPF enable
7. OSPF area ID
8. NMS IP address
9. Community name
10. Configuration file name

Enter your choice:
```

5. Enter the number of the parameter for which you require to define the information.
6. Enter the parameters configuration and click **Enter**. The value of the parameter is displayed in the screen.
   The following list defines the parameters in the *Startup Configuration* window:
   - **IP address:** The IP address of the interface is the only mandatory parameter. This address is used for SNMP management.
   - **IP subnet mask:** The IP subnet mask address of the device. The default value of this parameter is the mask of the IP address class.
   - **Port number:** The port number to which the IP interface is defined. The default value is 1. Other possible values include 1, 2, or 1, 2, 3, 4, or 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or 100001. If you enter 100001, all the ports are included in the IP VLAN, and the IP interface therefore sits on the IP VLAN.
   - **Default router IP address:** The IP Address of the router through which the NMS can be reached. The default value for this parameter is: **disable the default router IP address**.

- **RIP version:** The RIP version used by the network router. The default value for this parameter is: **disable**.
- **OSPF enable:** This parameter enables or disables the OSPF protocol. The default value is: **disable**.
- **OSPF area ID:** When the OSPF protocol is enabled, you can enter an area ID other than the default value. Enter an ID in the form of an IP address. The default value is 0.0.0.0.

The three remaining parameters are only necessary when the NMS is remote to the device. They offer three different ways to connect to the remote NMS. If the NMS is remote, enter a value for at least one of the three options.

- **NMS IP address:** The required NMS IP address. Enter a value if you require to limit the device to a single, specified NMS. The default value is 0.0.0.0 (any NMS).
- **Community name:** The community name of the device. The default community name is public. Enter a different name that you want as the community name.
- **Configuration file name:** The name of the file, in a format required by the server, which contains the configuration. Select this parameter when you require to download a configure file an NMS. The must, however, be located on the NMS, and the NMS must be located on a TFTP server. When you exit the *Startup Configuration* window, the device loads that configuration file from the NMS, resets and starts operating with the new configuration. The default value is: **no name**.

Note: FireProof enters a default value for the parameters that are incomplete, with the exception of the IP Address, which is mandatory. A validity check of all the parameters is then performed.

☞ **To manually configure the IP host parameters of the device in the Fast Ethernet platform:**

1. Ensure that the ASCII terminal is connected to the device.
2. Turn on the power to the device.
   The terminal displays the *Startup Menu* window, as shown below, within three seconds.

```
Startup Menu
1. Download sw
2. Erase config
3. Erase nvram
```

3. Select one of the three options to either download software, erase the existing configuration or to erase nvram. If you do not select or require any of these options, the boot sequence continues. The device detects whether or not it has the necessary configuration, and if not, the *Startup Configuration* window is displayed.
4. Enter the number of the parameter for which you require to define the information.
5. Enter the parameters configuration and click **Enter**. The value of the parameter is displayed in the screen.

FireProof Specifications and Requirements

Hardware (Fast Ethernet Platform)

CPU Microprocessor	Intel 960i HD.
Ethernet Controller	Intel 82557 Ethernet co-processor.
ASCII Terminal Port	9-pin female RS-232 connector, DCE Setup: 19200 bps, 8 bits, one stop bit, no parity.
Memory	4 MB Flash, 8-32 MB DRAM, 8 MB buffer, 8 KB NVRAM.

Hardware (Application Switch Platform)

CPU Power PC	Power PC 750.
Switch Architecture	Galileo GalNet II.
ASCII Terminal Port	9-pin female RS-232 connector, DCE Setup: 19200 bps, 8 bits, one stop bit, no parity.
Memory	8 MB Flash, 64-128 MB SDRAM, 32 KB NVRAM.

LAN Interfaces (Fast Ethernet Platform)

FireProof comes with two/four priority RJ45 ports for IEEE 802.3 10/100 BaseT. The two/four ports are auto-sensing but can be defined to a specific speed using Configware. FireProof supports half and full-duplex communication on 100 Mbps.

LAN Interfaces (Application Switch Platform)

FireProof comes with two Gigabit and/or eight Fast Ethernet ports for IEEE 802.3 10/100 BaseT and 1000 BaseSX. All the ports are auto-sensing. FireProof also supports half and full-duplex communication on 1000 Mbps.

Hardware Requirements

In order to use the Configware program successfully, your system components must include the following:

- Any Java enabled platform running on at least a 200MHz processor
- At least 32 Mbytes RAM
- 15 Mbytes free disk space
- CD-ROM for installation
- VGA or SuperVGA color adapter and monitor, 64K colors recommended

Software Requirements

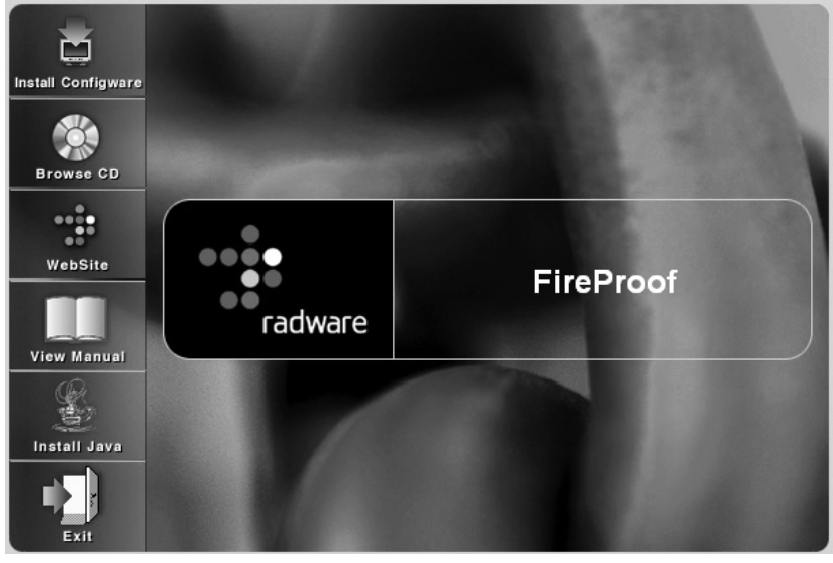
Java Support (Microsoft Internet Explorer 4.0 or Sun JRE).
If you do not have Java support, you can download Microsoft's Java Virtual Machine from their Web site:
http://www.microsoft.com/java/vm/dl_vm32.htm.

Installing Configware Management Software

The Configware Management Software can be installed as a stand-alone application or as a web-based management applet. Refer to *Appendix D* for installation details on web-based management software.

☞ **To install Configware as a stand-alone application:**

1. Insert the Configware CD in the CD Rom drive. The following window is displayed automatically.

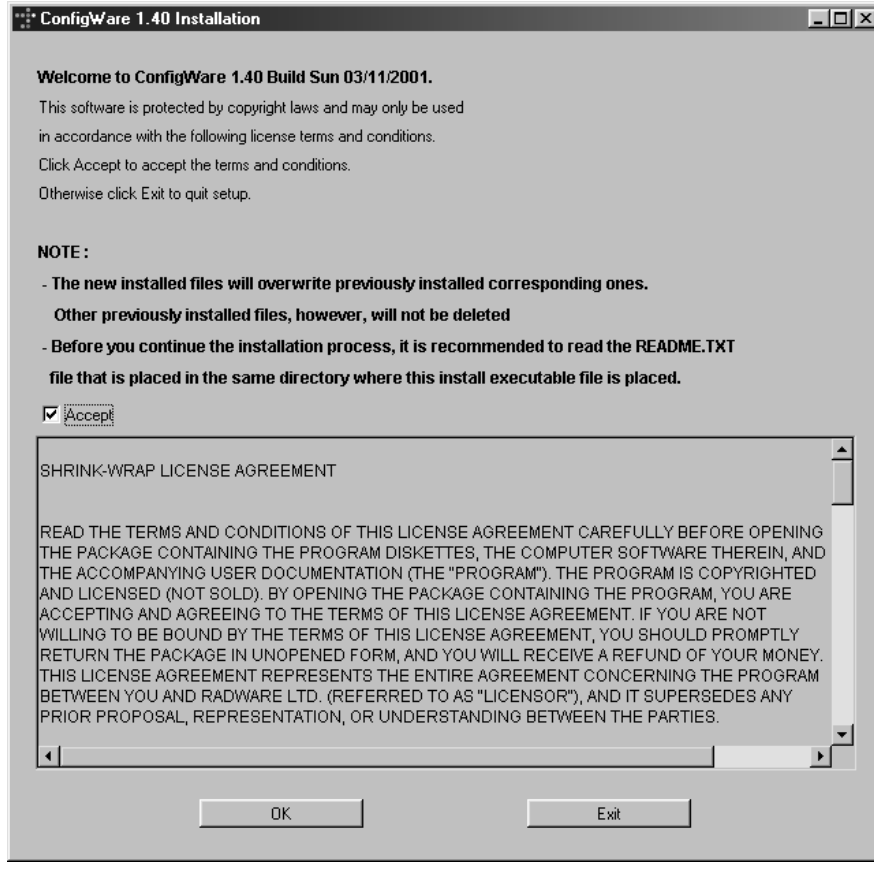


The following options are displayed on the left side of the screen:

- **Install Configware:** Displays the *Configware Web-Based Management* installation window in your browser. Refer to Appendix D for further details.
- **Browse CD:** Displays your Windows Explorer enabling you to browse the contents of the CD. This enables you install Configware as a stand-alone application.
- **Website:** Accesses the Radware website in your browser.
- **View Manual:** Displays the manual in Acrobat.

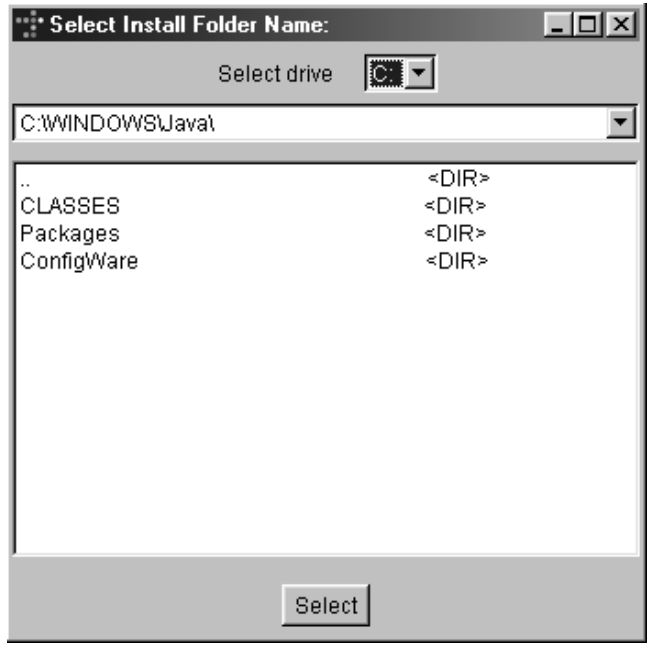
- **Install Java:** Enables you to install Java in a quick and easy-to-use set up.
- **Exit:** Closes the window.

2. Select Browse CD. In Windows Explorer, browse to the CD and select the Configware folder.
3. Double-click on the jview_setup.bat file. The *Configware 1.40 Installation* window is displayed, as shown below.


ConfigWare 1.40 Installation
Welcome to ConfigWare 1.40 Build Sun 03/11/2001.
This software is protected by copyright laws and may only be used
in accordance with the following license terms and conditions.
Click Accept to accept the terms and conditions.
Otherwise click Exit to quit setup.
NOTE :
- The new installed files will overwrite previously installed corresponding ones.
Other previously installed files, however, will not be deleted
- Before you continue the installation process, it is recommended to read the README.TXT
file that is placed in the same directory where this install executable file is placed.
Accept
SHRINK-WRAP LICENSE AGREEMENT
READ THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT CAREFULLY BEFORE OPENING THE PACKAGE CONTAINING THE PROGRAM DISKETTES, THE COMPUTER SOFTWARE THEREIN, AND THE ACCOMPANYING USER DOCUMENTATION (THE "PROGRAM"). THE PROGRAM IS COPYRIGHTED AND LICENSED (NOT SOLD). BY OPENING THE PACKAGE CONTAINING THE PROGRAM, YOU ARE ACCEPTING AND AGREEING TO THE TERMS OF THIS LICENSE AGREEMENT. IF YOU ARE NOT WILLING TO BE BOUND BY THE TERMS OF THIS LICENSE AGREEMENT, YOU SHOULD PROMPTLY RETURN THE PACKAGE IN UNOPENED FORM, AND YOU WILL RECEIVE A REFUND OF YOUR MONEY. THIS LICENSE AGREEMENT REPRESENTS THE ENTIRE AGREEMENT CONCERNING THE PROGRAM BETWEEN YOU AND RADWARE LTD. (REFERRED TO AS "LICENSOR"), AND IT SUPERSEDES ANY PRIOR PROPOSAL, REPRESENTATION, OR UNDERSTANDING BETWEEN THE PARTIES.
OK
Exit

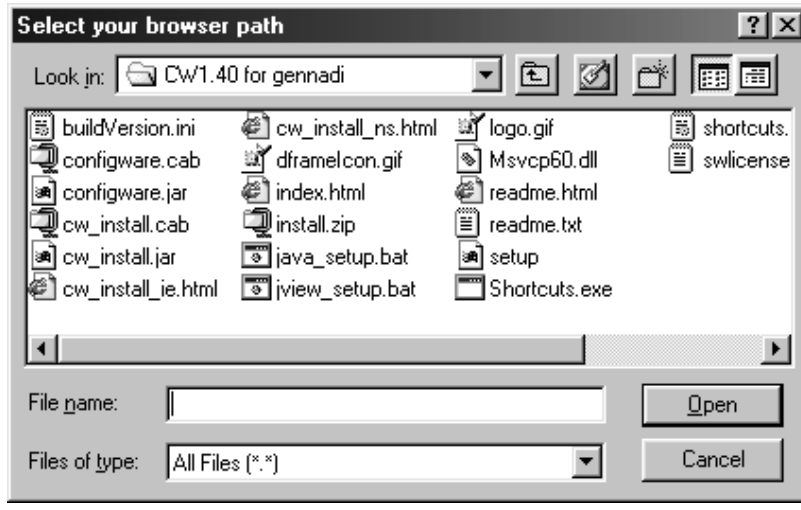
4. Read the SHRINK-WRAP LICENSE AGREEMENT. In order to continue with set up, you must accept the license agreement by checking the **Accept** checkbox. This enables the **OK** button.

5. Click **OK**. The *Select Install Folder Name* window is displayed, as shown below.



This window enables you to install the Configware management software in a specified location. Using the Select drive dropdown box and the path dropdown box, you can navigate to the folder in which you require to install Configware.

6. Click **Select**. The *Select your browser path* window is displayed, as shown below.



7. Navigate to your browser, usually located in your **Program Files** folder, and select the .exe file for your browser.
8. Click **Open**. The Configware files are extracted to your selected destination folder. When the installation is complete a success message dialog box is displayed.
9. Click **OK**. The installation is complete.

Notes:
Configware software takes up approximately 15MB of disk space.

You can access Configware management software from the Start menu, or via a shortcut on your desktop, or from the configure.bat file located in the Configware folder containing the software.

Configuring FireProof

Configware is an SNMP-based network management system. It gives you access to a myriad of configuration and monitoring options for each Radware device on the network, and provides real-time graphs of a wide selection of MIB variables to help you monitor the performance of each device.

The following sections are discussed in this chapter:

- **Getting Started**, page 3-2.
- **Setting Up a VLAN**, page 3-12.
- **Setting Interface Addresses and IP Router Options**, page 3-16.
- **Setting Up Firewalls**, page 3-19.
- **Configuring Router Settings**, page 3-55.
- **Setting Up Security**, page 3-72.
- **Configuring Bridge Settings**, page 3-75.
- **Configuring Services**, page 3-78.
- **Setting Up Application Security**, page 3-92.
- **Configuring Bandwidth Management (BWM)**, page 3-96.
- **Updating Software**, page 3-113.

Getting Started

The following subjects are discussed in this chapter:

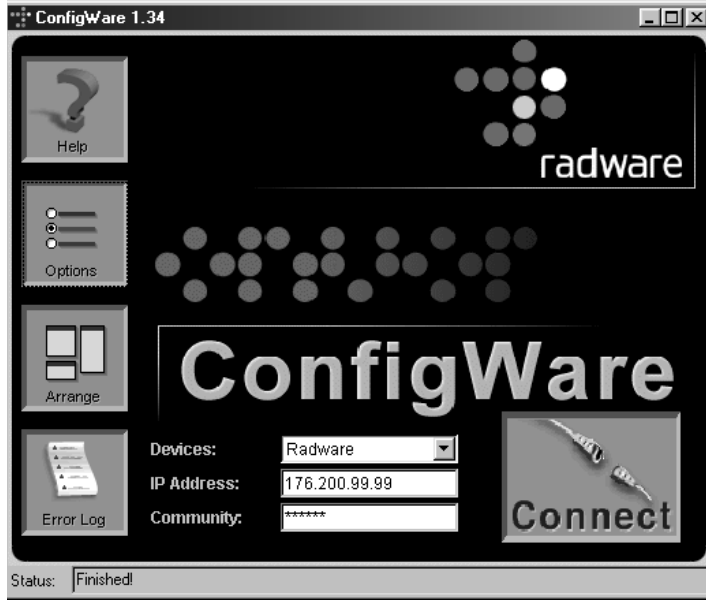
- **Running Configware**, below.
- **Using Buttons**, page 3-3.
- **Permanently Adding Devices to Configware**, page 3-3.
- **Connecting to a Device**, page 3-7.
- **Zoom View**, page 3-8.
- **Viewing Traps**, page 3-8.

Running Configware

Standalone

☞ **To run Configware (Windows 98/NT):**

- From the directory <Configware_Install>\NMS, run the program go.bat. The Configware opening screen is displayed, as shown below.



☞ **To run Configware (Unix):**

- From the directory <Configware_Install>/NMS, run the program go. The Configware opening screen is displayed.

Web-Based

☞ **To run Configware using a Web browser:**

- Browse to the URL entered during installation.

Using Buttons

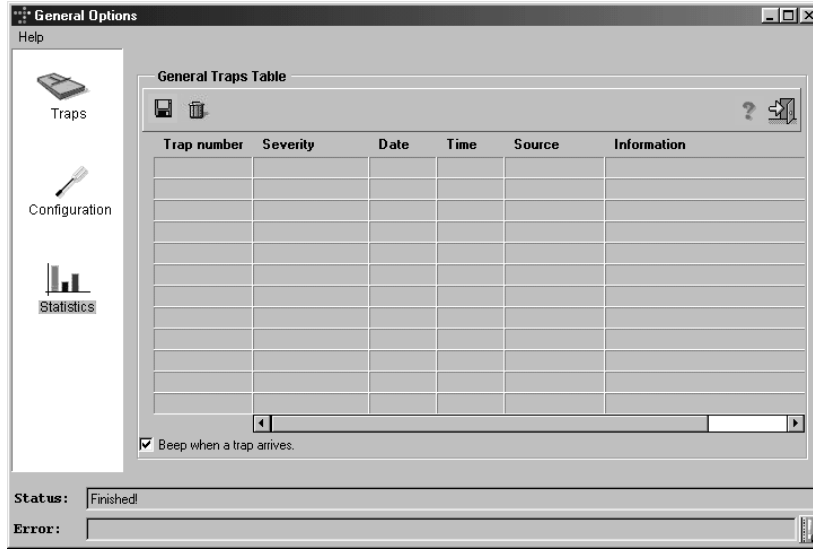
Configware windows have a toolbar with buttons for implementing various options. Each window contains only those buttons relevant to that window. Throughout this document, buttons will be referred to by name.

Permanently Adding Devices to Configware

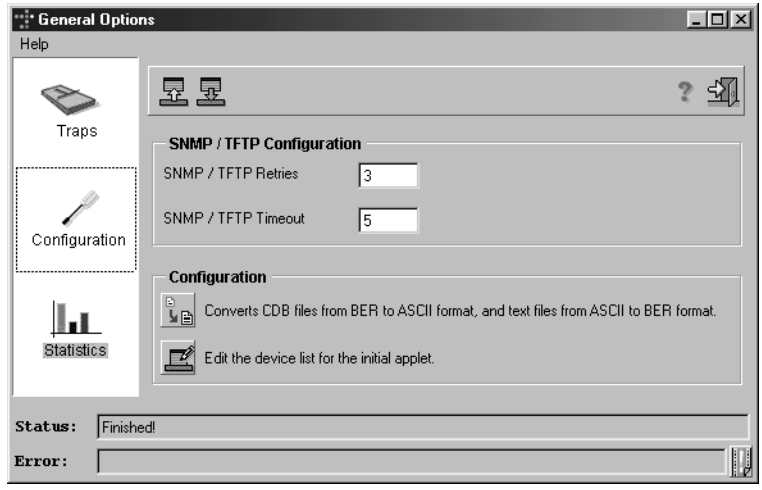
By creating a list of devices in Configware you can keep track of all of the devices you manage, and quicken the connection process. You are prompted during the installation process to enter devices in the Device List. Whether or not you added devices during installation, you can add, edit and delete devices at any time. Also, you can decide which device on the network to make the default device - the device that appears in the opening screen fields when Configware launches.

☞ **To add devices to the device list:**

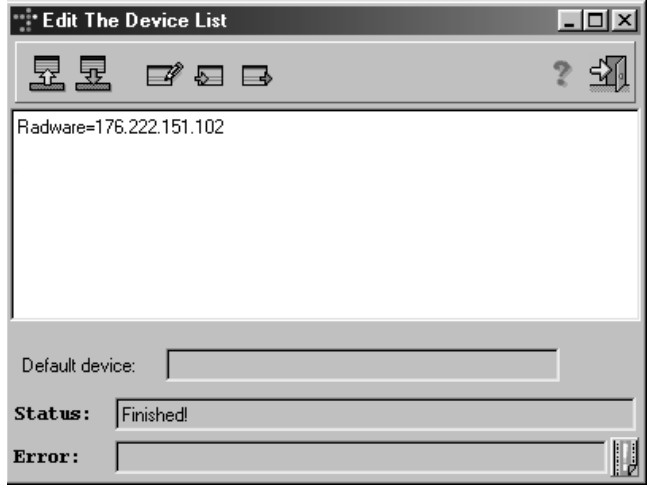
1. From the *Configware* window, click **Options**. The *General Options* window is displayed, as shown below.



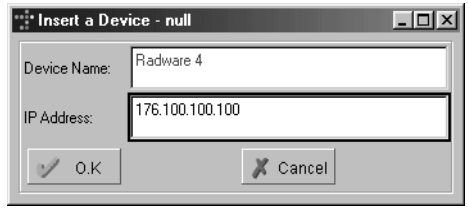
2. In the *General Options* window, click **Configuration**. The **Configuration** options are displayed in the *General Options* window, as shown below.



3. Click **Edit Device List**. The *Edit the Device List* window is displayed, as shown below.



4. In the *Edit the Device List* window, click **Insert**. The *Insert a Device* dialog box is displayed, as shown below.



5. Enter the **Device Name** and **IP Address** in the fields provided.
6. Click **OK**. The **Device Name** and **IP Address** are displayed in the *Edit the Device List* window.
7. Click **Set** to save the device information you entered, then click **Close Screen**.

☞ **To edit existing devices in the device list:**

1. From the *Configware* window, click **Options**. The *General Options* window is displayed.
2. In the *General Options* window, click **Configuration**. The **Configuration** options are displayed in the *General Options* window.
3. In the *Configuration* window, click **Edit Device List**. The *Edit the Device List* window is displayed.
4. From the list, choose the device you require to edit.
5. Click **Edit**. The *Edit a Device* dialog box is displayed.
6. Edit the **Device Name** and the **IP Address** in the fields provided.
7. Click **OK**. The *Edit a Device* dialog box closes.
8. In the *Edit Device List* window, click **Set**. The changes are recorded.

☞ **To delete devices from the device list:**

1. From the *Configware* window, click **Options**. The *General Option* window is displayed.
2. In the *General Options* window, click **Configuration**. The **Configuration** options are displayed in the *General Options* window.
3. In the *Configuration* window, click **Edit Device List**. The *Edit the Device List* window is displayed.
4. From the list, choose the device you require to delete.

5. Click **Delete**.
6. Click **Set**. The device is deleted from the list.

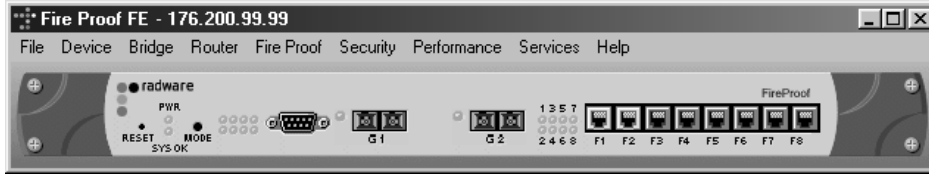
☞ **To set a device as default:**

1. From the *Configware* window, click **Options**. The *General Options* window is displayed.
2. In the *General Options* window, click **Configuration**. The **Configuration** options are displayed in the *General Options* window.
3. Click **Edit Device List**. The E*dit the Device List* window is displayed.
4. From the list, double-click the device you require to set as the default. The device appears in the **Default Device** field.
5. Click **Set**. The device appears in the **Devices** field of the opening screen when Configware is launched.

Connecting to a Device

☞ **To connect to a device:**

1. In the Configware opening screen, do one of the following:
   - From the **Devices** dropdown list, choose a device.
   - In the **IP Address** field, enter the IP Address of the device.
   - Adjust the community as required.
2. Click **Connect**. The *Zoom View* of the device is displayed, as shown below.



Note: If Configware is unable to connect to a server, a Device or Connection Error dialog box is displayed, in which you can try to reconnect by entering a new IP address, or the correct community name, or exit and return to the *Configware* window.

Zoom View

Zoom View is a real-time representation of a Radware device. Each of the device's interfaces is represented. *Zoom View* for FireProof units also includes the color-coded LED's located on the FireProof front panel. All Configware options are accessed through *Zoom View*, as shown on the previous page.

Understanding Zoom View Colors

Zoom View has labels representing the various interfaces of the Radware unit. The labels are color-coded to indicate the following:

Label Color	Explanation
Green	Interface is Okay.
Red	The Interface has generated an Error message, or the interface is not connected, or it has been put on standby by the spanning tree algorithm.

Refreshing Zoom View

You may wish to refresh Zoom View so you can see the current status of the device and its interfaces.

☞ **To refresh Zoom View:**

- Open the **Services** menu and choose **Refresh**. The device is polled for current status of the device and its interfaces.

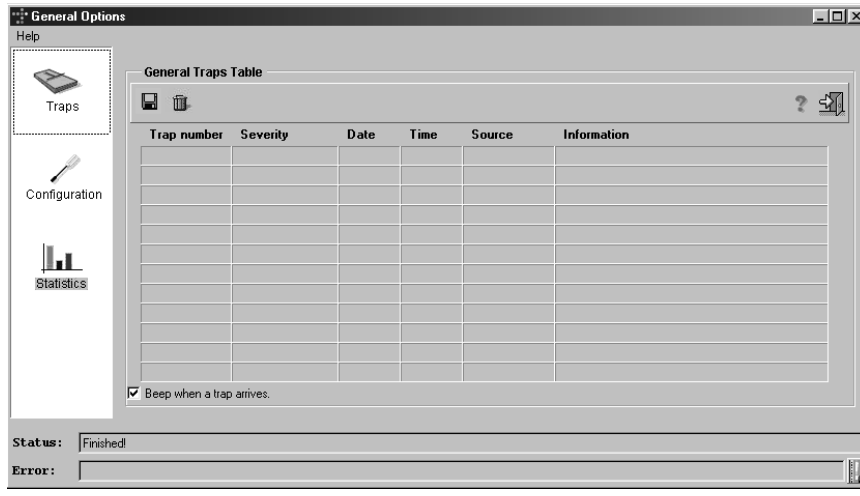
Viewing Traps

Use the *General Traps Table* window to view the traps that have occurred on all of the devices monitored by Configware.

☞ **To access the General Traps Table:**

1. From the *Configware* window, click **Options**. The *General Options* window is displayed.

2. In the *General Options* window, click **Traps**. The *General Traps Table* is displayed, as shown below.



The *General Traps Table* window records the following:

- **Trap number:** The number of the trap. Traps are numbered in the order that they occur.
- **Severity:** The level of the trap's severity. Trap severity ratings include, in increasing order of severity: Informational, Warning, Error and Fatal.
- **Date:** The date that the trap occurred.
- **Time:** The time that the trap occurred.
- **Source:** The IP Address that caused the trap.
- **Information:** Description of the trap.

Note: Traps are only displayed in this window when the device is configured to send traps to the management station, and only traps that are sent whilst this window is open are displayed.

☞ **To save traps to file:**

- From the *General Traps Table* window, click **Save to File**. The file is saved as traps.dat in the directory <Configware Directory/Nms/Configuration>.

☞ **To clear the traps table:**

- From the *General Traps Table* window, click **Delete All**.

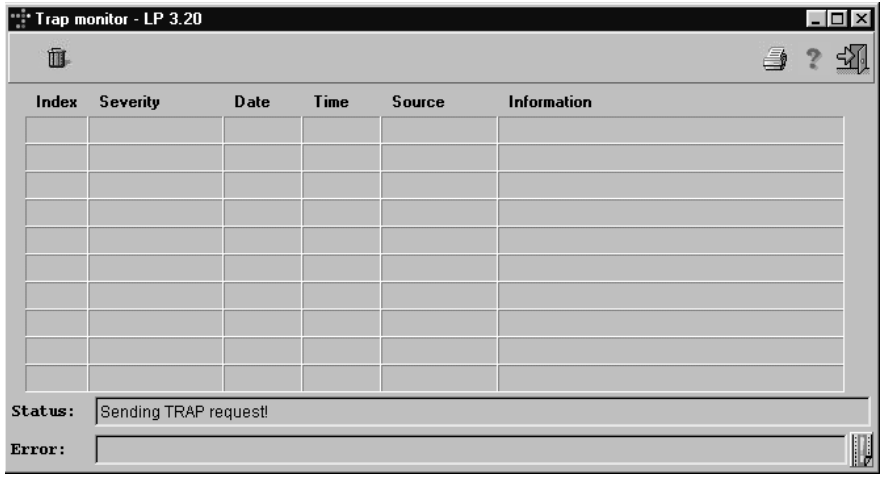
You can also view traps for specific functions. These specified traps tables may be viewed under two categories, Security Traps and Traps Monitor.

The *Security Traps* window contains information about security events detected by the **Application Security** module, such as when an attack started and its status. For more information refer to *Setting Up Application Security*, page 3-92.

The *Traps Monitor* window contains information about all traps except those reported by the **Application Security** module.

☞ **To access the Traps Monitor window:**

- From the **Services** menu, select **Trap Log**. The *Trap Monitor* window is displayed, as shown below.



The *Traps Monitor* window records the following:

- **Index** - The number of the trap. Traps are numbered in the order that they occur.
- **Severity** - The level of the trap's severity. Trap severity ratings include, in increasing order of severity: Informational, Warning, Error and Fatal.
- **Date** - The date that the trap occurred.
- **Time** - The time that the trap occurred.
- **Source** - The IP Address that triggered the trap.
- **Information** - Description of the trap.

Note: Traps are only displayed in this window when the device is configured to send traps to the management station, and only traps that are sent whilst this window is open are displayed.

Setting Up a VLAN

FireProof allows you to define VLANs. VLANs are software defined groups of interfaces that communicate within one protocol seemingly as if they are on the same wire even though they are spread out on different LAN segments. Standard interface attributes can be applied to VLANs.

There are a number of default VLANs that already exist and initially do not contain any ports:

- *"Other" VLAN* (ifIndex 100000)
- *IP VLAN* (ifIndex 100001)

IP VLANs are automatically assigned a MAC address. The "Other" VLAN is a "super-VLAN" that includes all protocols for which VLANs have not been defined. However, it does not include IP.

The following table lists the VLAN types that FireProof supports:

VLAN Type	Description
Regular	The device acts as a bridge. Refer to Example 2 in Appendix A for further details.
BroadcastAndUnicast	The device acts as a bridge and as a proxy ARP, hiding the MAC addresses of devices connected to different ports. The device processes only packets destined to its MAC address. Available in C/H platforms only.
Switched	The device acts as a switch. Packets between devices connected to different ports that belong to the same switched VLAN and are processed by the ASICs, rather then by the CPU.

This section also contains the following information:

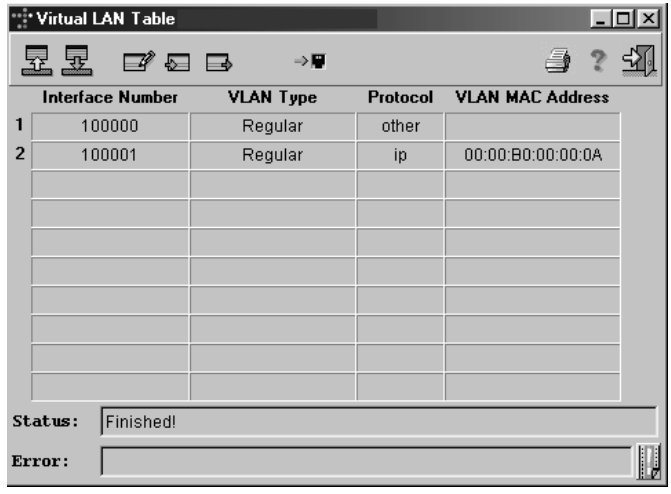
- **Creating VLANs**, page 3-13.
- **Configuring VLAN Parameters**, page 3-14.

Creating VLANs

You use the *Virtual LAN Table* window to monitor, insert and edit VLANs.

☞ **To access the Virtual LAN Table window:**

- From the **Device** menu, choose **VLAN**. The *Virtual LAN Table* window is displayed, as shown below. This represents the new Application Switch platform.



The *Virtual LAN Table* window includes the following fields:

- **Interface Number** - The interface number of the VLAN, automatically assigned by the management station.
- **VLAN Type** - Either a regular, a broadcast or a switch type VLAN.
- **Protocol** - The protocol of the VLAN. For an explanation of the VLAN protocols, see above.
- **VLAN MAC Address** - Permanent MAC address of the VLAN, automatically assigned by the device. This parameter applies to IP and IPX VLANs only.

The Fast Ethernet platform contain the following additional field:

- **Auto Config** - When this parameter is enabled, the device will automatically detect and add interfaces to this IP VLAN in accordance with incoming IP broadcasts and ARP requests. This means that a network device can be moved to a different device port and remain in the same VLAN. **This will be done only if the IP VLAN Auto Config is enabled**. This parameter applies to IP VLANs only.

☞ **To create new VLANs:**

1. In the *Virtual LAN Table* window, click **Insert**. The *Virtual LAN Insert* dialog box is displayed.
2. Adjust the appropriate values.
4. Click **Update**. The *Virtual LAN Insert* dialog box closes.
5. In the *Virtual LAN Table* window, click **Set**. The VLAN is added to the list.

☞ **To add physical ports to the VLAN:**

1. In the *Virtual LAN Table* window, select the VLAN entry for which you require to add a physical port.
2. Click **Adding Ports to VLAN**. The *Ports Table for VLAN* window is displayed, in which you can define or edit the **Port Number** and the **Port Tagging**.

☞ **To edit existing VLANs:**

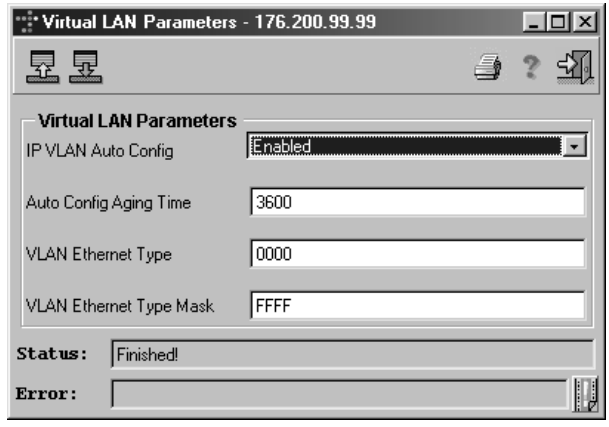
1. In the *Virtual LAN Table* window, select a VLAN to edit.
2. Click **Edit**. The *Virtual LAN Edit* dialog box is displayed.
3. Adjust the appropriate values.
4. Click **Update**. The *Virtual LAN Edit* closes.
5. In the *Virtual LAN Table* window, click **Set**. Your changes are recorded.

Configuring VLAN Parameters

You use the *Virtual LAN Parameters* window to monitor, add and edit VLAN parameters.

☞ **To access the Virtual LAN Parameters window:**

- From the **Device** menu, choose **VLAN Parameters**. The *Virtual LAN Parameters* window is displayed, as shown below.



The *Virtual LAN Parameters* window includes the following fields:

- **IP VLAN Auto Config** - When this parameter is enabled, the device will automatically detect and add interfaces to existing IP VLANs in accordance with incoming IP broadcasts and ARP requests. This means that a network device can be moved to a different device port and remain in the same VLAN. This will be done only for VLANs with Auto Config On.
- **Auto Config Aging Time** - Ports refresh time for VLANs with autoconfig.
- **LAN Ethernet Type (for user defined VLANs)** - Defines the Ethernet type for user defined VLANs.
- **VLAN Ethernet Type Mask (for user defined VLANs)** - Defines the mask on Ethernet type for user defined VLANs.

☞ **To configure VLAN interface parameters:**

1. In the *Virtual LAN Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

Setting Interface Addresses and IP Router Options

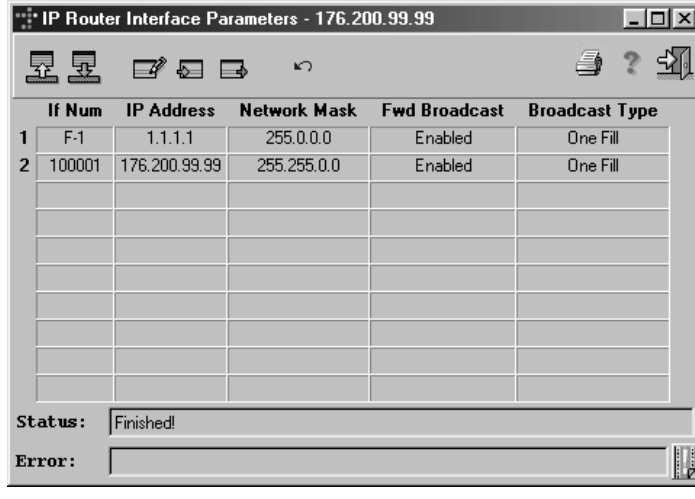
For your FireProof to perform IP routing, you must configure IP interfaces. IP interfaces consist of two parts: An IP Address, and an *IP Network Mask*.

- **IP Address** - The IP Address is defined for a physical port or VLAN.
- **IP Network Mask** - The IP Network Mask is determined by your network setup.

IP interfaces comprise a particular IP Address coupled with a particular IP Network Mask. FireProof will perform IP routing between all defined IP interfaces.

☞ **To configure your device as an IP router:**

1. From the **Router** menu, select **IP Router** and then choose **Interface Parameters**. The *IP Router Interface Parameters* window is displayed, listing current IP interfaces.

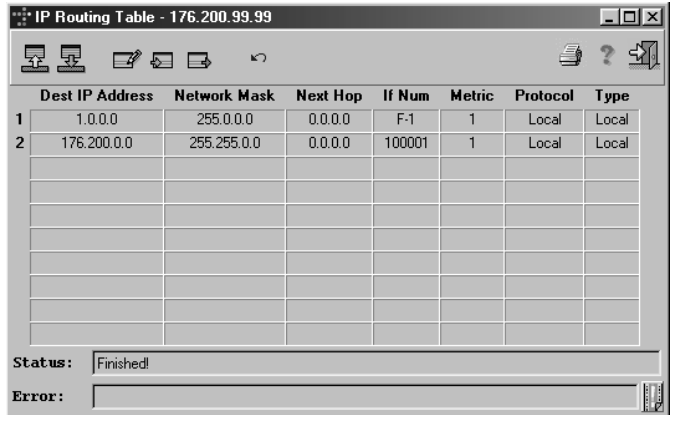


2. Click **Insert**. The *IP Router Interface Parameters Insert* dialog box is displayed.

3. From the **IF Num** dropdown list, choose an IF (Interface) Number. The list contains all physical interfaces and all IP VLANs. If you want a combination of physical interfaces that is not listed, use the *Virtual LAN Table* window, see page 3-11, to define the desired combination.
4. Enter the **IP Address** and **Network Mask** as determined by your network setup.
5. Click **Update**. The new IP interface is added, and the *IP Router Interface Parameters Insert* dialog box closes.
6. Repeat steps 2 - 6 for all IP interfaces.
7. Optionally, select an interface from the *IP Router Interface* Parameters window and click **Edit** to edit the ICMP and RIP parameters of the interface.
8. Click **Update**. The *IP Router Interface Parameters Insert* dialog box closes.
9. In the *IP Router Interface Parameters* window, click **Set**. The new IP interface definitions are sent to the device. IP routing is performed between the defined IP interfaces.

☞ **To define a default router:**

1. From the **Router** menu, choose **Routing Table**. The *IP Routing Table* window is displayed, as shown below.



2. Click **Insert**. The *IP Routing Table Insert* dialog box is displayed.

3. In the *IP Routing Table Insert* window, adjust the values in the following fields:
   - **Destination IP Address** - Set to x.x.x.x.
   - **Network Mask** - Set to x.x.x.x.
   - **Next Hop** - Address of the next system of this route, local to the interface.
   - **IF Number** - The IF Index of the local interface through which the next hop of this route is reached.
   - **Metric** - Number of hops to the destination network.
   - **Protocol** - Through which protocol the route is known.
   - **Type** - How remote routing is handled.
     - *Remote* - Forwards packets.
     - *Reject* - Discards packets.

4. Click **Update**. The *IP Routing Table Insert* dialog box closes.
5. In the *IP Routing Table* window, click **Set**. The default router is set.

Setting-Up Firewalls

FireProof balances loads among firewalls transparently.

This section includes the following information:

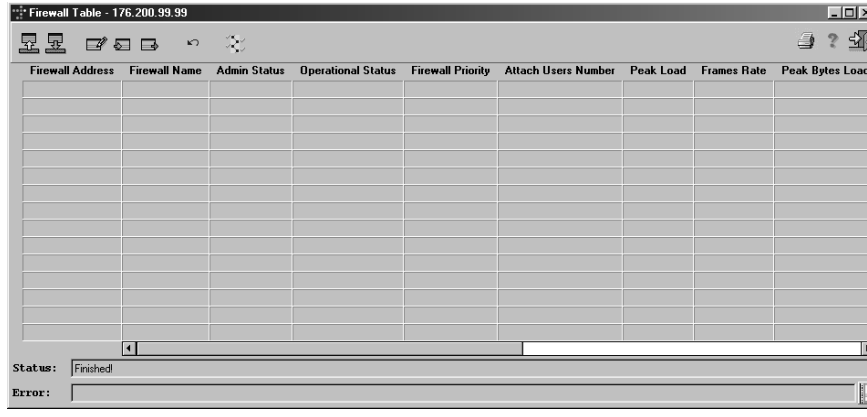
- **Configuring Firewalls**, page 3-20.
- **Creating Virtual IP Addresses**, page 3-22.
- **Mapping NAT Addresses to Virtual IP Addresses**, page 3-24.
- **Smart NAT**, page 3-25.
- **Creating Rules for Port Connection**, page 3-31.
- **Configuring Application Aging**, page 3-32.
- **Configuring Firewall Grouping**, page 3-34.
- **Full Path Health Monitoring**, page 3-38.
- **Controlling Traffic to Newly Booted Firewalls**, page 3-39.
- **Viewing Active Clients**, page 3-40.
- **Global Configuration**, page 3-41.
- **Setting Up Redundant FireProof Devices**, page 3-46.
- **Configuring IP Router Redundancy**, page 3-47.
- **Configuring Mirroring**, page 3-49.
- **Configuring a Remote Virtual IP Address**, page 3-51.
- **Defining Load Balancing Algorithms**, page 3-52.

Configuring Firewalls

You use the *Firewalls Table* window to monitor, insert and edit firewall information.

☞ **To access the Firewall Table window:**

- From the **FireProof** menu, choose **Firewall Table**. The *Firewall Table* window is displayed, as shown below.



The *Firewall Table* window includes the following fields:

- **Firewall Address** - The IP address of the firewall.
- **Firewall Name** - The name of the firewall. Each firewall should have a unique name.
- **Admin. Status** - The firewall status:
  - *Enabled* - Activates the firewall. The Operational Status (see Operational Status below) will change to active.
  - *Disabled* - Stops the firewall. The Operational Status will change to *Not In Service*. All connections end and no new connections can be made.
  - *Shutdown* - Shuts down the firewall. The Operational Status will change to *No New Sessions*. No new connections can be made. Existing connections remain until ended by the client.
- **Operational Status** - The Operational Status parameter reflects the Admin Status of the firewall.
  - *Active* - Firewall is active.
  - *Not In Service* - Firewall is or will become inactive. Existing sessions will be redirected to other firewalls.

- ❖ *No New Sessions* - Firewall will receive no new sessions. Existing sessions are allowed to complete.

- **Firewall Priority** - Priority for traffic directing. A firewall with a higher weight will serve more clients. The weight ranges from 1 to 100. A firewall with priority 2 will receive twice the amount of traffic as a Firewall with priority 1. This is not available for the cyclic dispatch method.
- **Attach Users Number** - The number of active users on the firewall.
- **Peak Load** - The highest number of packets per second on the firewall.
- **Frames Rate** - The number of frames transferred in the last second.
- **Peak Kbits Load** - The highest number of Kbits per second on the firewall.
- **Kbits Rate** - The number of Kbits transferred in the last second.
- **Kbits Load** - The highest number of Kbits transferred in the last second.
- **Kbits Limit** - Enables you to limit the total bandwidth used in Kbits per second.
- **Inbound Kbits Limit** - Enables you to limit the inbound bandwidth used in Kbits per second.
- **Outbound Kbits Limit** - Enables you to limit the outbound bandwidth used in Kbits per second.
- **Inbound Kbits Load** - Counts the total amount of inbound traffic in K/bits.
- **Outbound Kbits Load** - Counts the total amount of outbound traffic in K/bits.
- **Inbound Kbit/s Rate** - Records the rate of inbound traffic in Kbits per second.
- **Outbound Kbit/s Rate** - Records the rate of outbound traffic in Kbits per second.
- **Firewall Mode** - Whether the firewall is in regular or backup mode. When a firewall is in backup mode, FireProof will not send any messages to it unless all the firewalls in regular mode are down. When more than one backup firewall exists, FireProof determines which backup firewall to use according to the dispatch method and the firewall's priority.

- **Firewall Type** - This denotes the type of firewall. This can be either *Regular* or *Next Hop Router*. The *Next Hop Router* type implies that the firewall appears in the Routing Table. Next Hop Router firewalls cannot be deleted.
  Note: When a firewall is a next hop router it cannot be deleted from the table. In order to remove a firewall, which is a next hop router, make sure this router is not connected to the same interface as the default gateway of the device, or change the routing configuration.
- **Connection Limit** - The maximum number of allowed sessions open at any given time on this firewall. When the limit is reached, new sessions will no longer be redirected to this firewall.
- **Firewall Mac Address Status** - This indicates if the MAC of the firewall has been located. If false, this firewall cannot participate in the forwarding.
- **Firewall Port Number** - This is the FireProof port on which the firewall LAN resides.

☞ **To add a new firewall:**

1. In the *Firewall Table* window, click **Insert**. The *Firewall Table Insert* dialog box is displayed.
2. Enter the appropriate information.
3. Click **Update**. The *Firewall Table Insert* dialog box closes.
4. Click **Set**. The firewall is added to the table.

☞ **To edit an existing firewall:**

1. In the *Firewall Table* window, select a firewall from the list.
2. Click **Edit**. The *Firewall Table Edit* dialog box is displayed.
3. Enter the appropriate information.
4. Click **Update**. The *Firewall Table Edit* dialog box closes.
5. Click **Set**. The new firewall parameters are set.

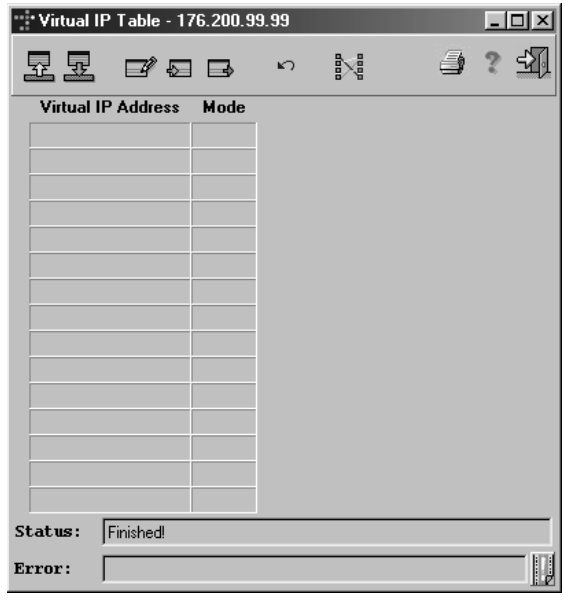
Creating Virtual IP Addresses

You can create virtual IP addresses so that FireProof can balance loads between firewalls where one or more use NAT addresses. You do so by creating a virtual IP address and mapping the NAT addresses of the firewalls to it. Clients destined to the virtual IP address are redirected to the appropriate firewall according to the configured dispatch method. You can configure up to 400 virtual IP addresses per FireProof.

You use the *Virtual IP Table* window to configure virtual IP addresses.

☞ **To access the Virtual IP Table window:**

- From the **FireProof** menu, choose **Virtual IP**. The *Virtual IP Table* window is displayed, as shown below.



The *Virtual IP Table* window consists of the following fields:

- **Virtual IP Address** - The IP address to which clients will connect. Virtual IP addresses must be on the same subnet as the FireProof.
- **Mode** - Defines the mode of the device. If the device is an active device, *Regular* should be selected. If the device is a backup device, *Backup* should be selected.

☞ **To set up a Virtual IP address:**

1. In the *Virtual IP Table* window, click **Insert**. The *Virtual IP Insert Table* dialog box is displayed.
2. Adjust the values of the appropriate fields.
3. Click **Update**. The *Virtual IP Insert Table* dialog box closes.
4. In the *Virtual IP Table* window, click **Set**. Your changes are made.

☞ **To edit a Virtual IP address:**

1. In the *Virtual IP Table* window, select the virtual IP address you require to edit.
2. Click **Edit**. The *Virtual IP Edit Table* dialog box is displayed.
3. Make changes to the appropriate fields.
4. Click **Update**. The *Virtual IP Edit Table* dialog box closes.
5. In the *Virtual IP Table* window, click **Set**. Your changes are made.

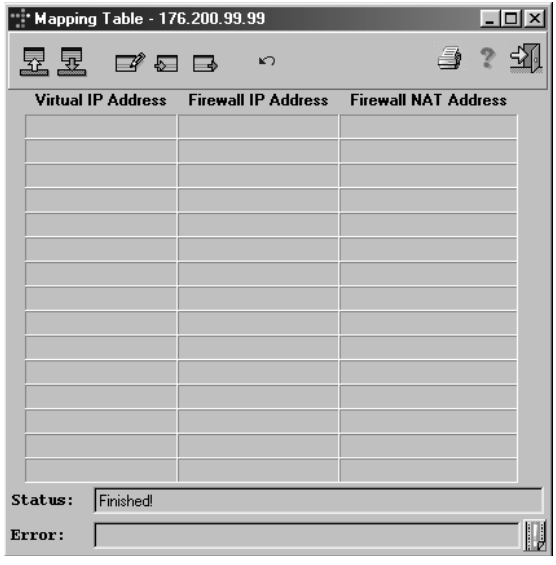
Mapping NAT Addresses to Virtual IP Addresses

Once you have created a virtual IP address, you can map firewall NAT addresses to it. You can assign each virtual IP address one NAT address from each firewall.

You use the *Mapping Table* window to map NAT addresses to virtual IP addresses.

☞ **To access the Mapping Table window:**

- From the **FireProof** menu, choose **Mapped IP**. The *Mapping Table* window is displayed.



The *Mapping Table* window contains the following fields:

- **Virtual IP Address** - The virtual IP address to which you wish to map the NAT address.
- **Firewall IP Address** - The IP address of the firewall you wish to map to the virtual IP address.
- **Firewall NAT Address** - The NAT address of the firewall.

☞ **To map a new NAT address to a virtual IP:**

1. In the *Mapping Table* window, click **Insert**. The *Mapped IP Table Insert* dialog box is displayed.
2. Enter the appropriate information.
3. Click **Update**. The *Mapped IP Table Insert* dialog box closes.
4. In the *Mapping Table* window, click **Set**. Your changes are made.

Smart NAT

Smart NAT refers to intelligent Network Address Translation which is discussed in this section in different forms. Smart NAT enables a local-area network to use or map one set of IP addresses for internal devices to multiple sets of addresses for external devices. The following types of Smart NAT are explained, **Dynamic** and **Static**. In addition, a new NAT feature has been added, **No NAT**, which provides an easy No NAT configuration. Refer to page 3-29 for further details.

Configuring Static Smart NAT

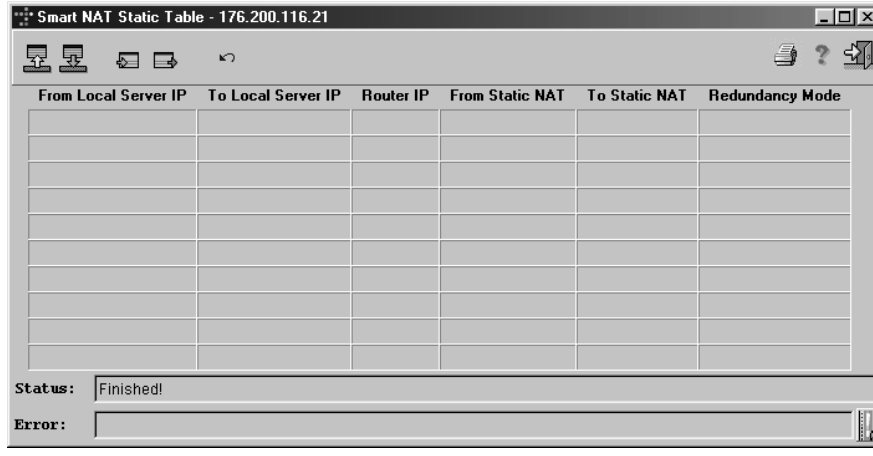
You use Static Smart NAT to ensure delivery of specific traffic to a particular server on the internal network. For example, FireProof uses Static Smart NAT, meaning predefined addresses mapped to a single internal host, to load balance traffic to this host among multiple transparent traffic connections. This ensures that return traffic uses the same path and also allows traffic to this single host to use multiple ISPs transparently. You assign multiple Static Smart NAT addresses to the internal server, one for each ISP address range.

Note: Static Smart NAT addresses cannot be part of the Dynamic NAT IP pool.

You use the *Smart Static NAT Table* window to assign NAT addresses to a local server.

☞ **To access the Smart Static NAT Table window:**

- From the **FireProof** menu, select **Smart NAT** and then choose **Static NAT**. The *Smart Static NAT Table* window is displayed, as shown below.



Note: The ranges must be of equal size.

The *Smart Static NAT Table* window contains the following fields:

- **From Local Server IP** - The IP address of the local server.
- **To Local Server IP** - The IP address of the local server.
- **Router IP** - The IP of a router which is being load balanced. The router IP is chosen from the Firewalls table.
- **From Static NAT** - The range of IP addresses.
- **To Static NAT** - The range of IP addresses.
- **Redundancy Mode** - The redundancy mode can be either **Backup** or **Active**. The **Active** mode is for the active device and the **Backup** mode is for the backup device.

☞ **To perform static NAT:**

1. From the **FireProof** menu, choose **Global Configuration**. The *Global Configuration Table* window is displayed.

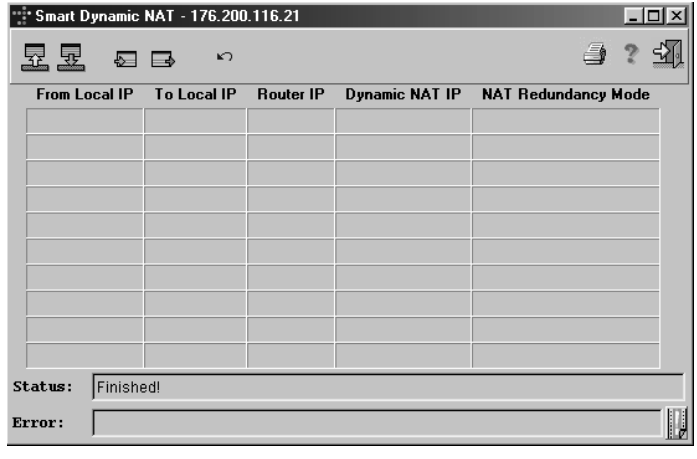
2. Ensure that Smart NAT is enabled.
3. From the **FireProof** menu, select **Smart NAT** and then choose **Static NAT**. The *Static NAT Table* window is displayed.
4. Click **Insert**. The *Static NAT Table Insert* dialog box is displayed.
5. Enter the appropriate information.
6. Click **Update**. The *Static NAT Table Insert* dialog box closes.
7. In the *Static NAT Table* window, click **Set**. Your changes are made.

Configuring Dynamic Smart NAT

You use Dynamic Smart NAT to ensure the dynamic delivery of specific traffic to clients on the internal network. FireProof uses Dynamic Smart NAT, meaning on-the-fly mapping of addresses, to load balance traffic among multiple transparent traffic connections, using multiple address ranges, ensuring return traffic uses the same path. You can use Dynamic Smart NAT to assign a single address to a range or subnet of local hosts.
You use the *Dynamic Smart NAT* window to assign NAT addresses to firewall IP addresses.

☞ **To access the Smart Dynamic NAT window:**

- From the **FireProof** menu, select **Smart NAT** and then choose **Dynamic NAT**. The *Smart Dynamic NAT* window is displayed.



The *Smart Dynamic NAT* window contains the following fields:

- **From Local IP** - Displays the range of local IP addresses.
- **To Local IP** - Displays the range of local IP addresses.
- **Router IP** - The IP of a router that is being load balanced. The router IP is chosen from the Firewalls table.
- **Dynamic NAT IP** - The IP address to be used when forwarding traffic from that client range to the router IP above.
- **NAT Redundancy Mode** - Whether the NAT address is regular or backup.

☞ **To perform dynamic NAT:**

1. From the **FireProof** menu, choose **Global Configuration**. The *Global Configuration Table* window is displayed.
2. Ensure that **Smart NAT** is enabled.
3. From the FireProof menu, select **Smart NAT** and then choose **Dynamic NAT**. The *Smart Dynamic NAT* window is displayed.
4. Click **Insert**. The *Smart Dynamic NAT Insert* dialog box is displayed.
5. Enter the appropriate information.
6. Click **Update**. The *Smart Dynamic NAT Insert* dialog box closes.
7. In the *Smart Dynamic NAT* window, click **Set**. Your changes are made.

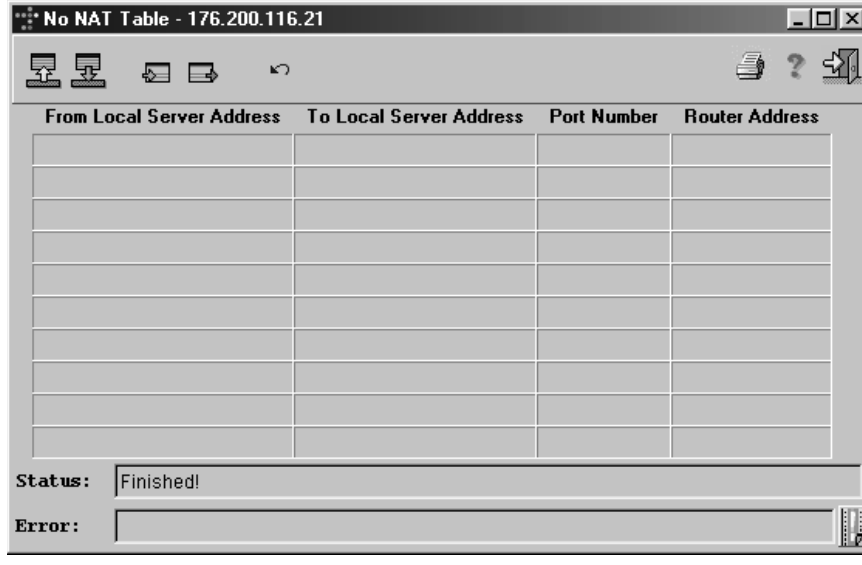
No NAT Configuration

You can use No NAT to enable a simple configuration where internal hosts have IP addresses that belong to a range of one of the ISPs. Traffic from or to these hosts should not be NATed if the traffic is forwarded to the router of that ISP.

If you do not configure any NAT address for a server via a firewall, that firewall will not be used by traffic from that server. In order to use a firewall for a server when NAT is not required, use the No NAT configuration.

☞ **To access the No NAT Table window:**

- From the **FireProof** menu, select **Smart NAT** and then choose **No NAT**. The *No NAT Table* window is displayed, as shown below.



The *No NAT Table* window contains the following fields:

- **From Local Server Address** - The range of local server addresses.
- **To Local Server Address** - The range of local server addresses.
- **Port Number** - This is the destination port for which traffic is not NATed. For example, all traffic to destination port 80 is not NATed. Destination port 0 refers to all the ports.
- **Router Address** - The IP address of the router.

☞ **To perform No NAT:**

1. From the **FireProof** menu, choose **FireProof**. The *No NAT Table* window is displayed.
2. Ensure that Smart NAT is enabled.
3. From the **FireProof** menu, select **Smart NAT** and then choose **Static NAT**. The *Static NAT Table* window is displayed.
4. Click **Insert**. The *Static NAT Table Insert* dialog box is displayed.
5. Enter the appropriate information.
6. Click **Update**. The *Static NAT Table Insert* dialog box closes.
7. In the *Static NAT Table* window, click **Set**. Your changes are made.

Creating Rules for Port Connection

You can create rules for port connection so that traffic entering a certain port always exits via a specified port. For example, you can create a rule whereby traffic entering port 1 always exits via port 2. It is legal to have traffic exit the same port through which it enters. In this way, you can keep network segments separate.
The default device configuration has no port connection rules. Flow is not limited, and traffic can go from all ports to all ports according to routing and load balancing algorithms.
Note: For security reasons you can only configure this via ASCII CLI.

☞ **To create rules for port connection:**
1. Type rules set x y, where x is the incoming port and y is the outgoing port. x and y can be the same port.
2. Press **Enter**.

☞ **To view rules configured for a specific port:**
1. Type rules get x, where x is the port number.
2. Press **Enter**.

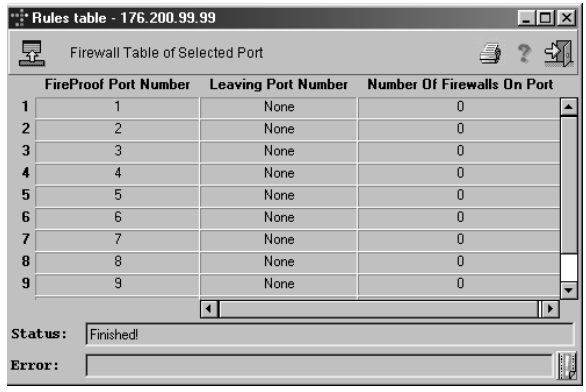
☞ **To delete a specific rule:**
1. Type rules delete x y, where x is the incoming port and y is the outgoing port.
2. Press **Enter**.

☞ **To delete all rules:**
1. Type rules delete.
2. Press **Enter**.

You can use the *Rules Table* window to view what rules have been configured on the device.

☞ **To access the Rules Table window:**
- From the **FireProof** menu, select **Firewalls Advanced Configuration** and then choose **Rules Table**.

The *Rules Table* window is displayed, as shown below.



The *Rules Table* window includes the following fields:

- **FireProof Port Number** - The FireProof port number from which the traffic enters.
- **Leaving Port Number** - The number of the FireProof port through which traffic entering the FireProof Port Number can exit.
- **Number of Firewalls on Port** - The number of servers connected to the FireProof port.

☞ **To view the Firewall Table of a specific FireProof port:**

1. From the *Rules Table* window, select a rule.
2. Click **Firewall Table**. The *Firewall Table* window is displayed.

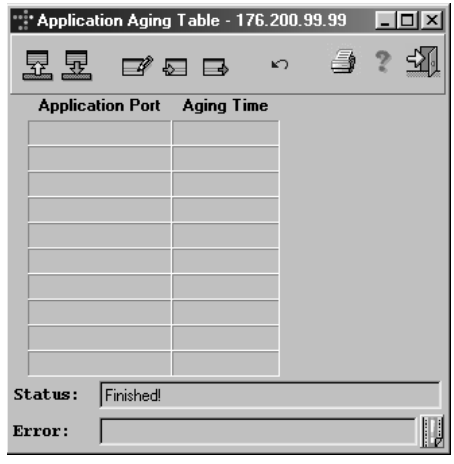
Configuring Application Aging

You can assign different applications different client life-times. Since applications are identified by the ports they use, you assign application aging times by configuring aging times for specific ports. For example, you can assign FTP longer aging times and HTTP shorter ones.
You can configure application-aging times for applications in the TCP and UDP protocols. For applications not included in the UDP and TCP protocols (e.g., ICMP), use port 0. Any applications for which you do not assign an aging time will age according to the Global Configuration.

You use the *Application Aging Table* window to configure application aging.
Note: In order for Application Grouping to work you must have one of these options enabled: **Open New Entry for Different Source Port** and **Select New Firewall for Different Source Port**.

☞ **To access the Application Aging Table window:**

- From the **FireProof** menu, select **Firewalls Advanced Configuration** and then choose **Aging By Application Port**. The *Application Aging Table* window is displayed, as shown below.



The *Application Aging Table* window contains the following fields:

- **Application Port** - The application port for which to configure the aging time.
- **Aging Time** - The duration, in seconds, of the client lifetime.

☞ **To assign application aging times:**

1. In the *Application Aging Table* window, adjust the appropriate parameters.
2. Click **Set**. Your changes are made.

Configuring Firewall Grouping

You can set up a policy list in FireProof to govern which firewall(s) to use according to the traffic type. You can define firewall groups according to the destination subnet of the traffic, the source subnet of the traffic, and/or the application type of the traffic. For example, you can have HTTP traffic load balanced between two out of your four firewalls, while having traffic to a particular subnet load balanced between two other firewalls. Note that firewalls can be grouped in more than one group.

This section includes the following information:

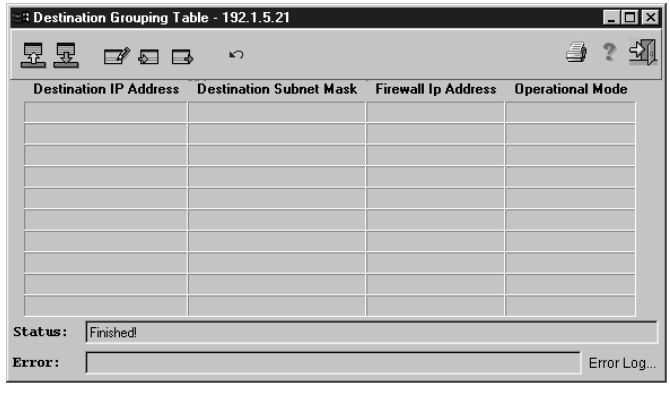
- **Setting Up Destination Grouping**, below.
- **Setting Up Source Grouping**, page 3-35.
- **Setting Up Application Grouping**, page 3-36.

Setting Up Destination Grouping

Destination grouping allows you to determine which firewalls will handle traffic to a specific destination subnet. You use the Destination Grouping Table window to configure destination grouping.

☞ **To access the Destination Grouping Table window:**

- From the **FireProof** menu, select **Firewalls Advanced Configuration**, select **Grouping** then select **Destination Grouping**. The *Destination Grouping Table* window is displayed.



The *Destination Grouping Table* window includes the following fields:

- **Destination IP Address** - The IP Address of the destination.
- **Destination Subnet Mask** - The subnet mask of the destination.
- **Firewall IP Address** - The IP address of the firewall to handle the traffic.
- **Operational Mode** - Whether the firewall will be active or backup for this group.

☞ **To define a group based on destination subnet:**

1. In the *Destination Grouping Table* window, click **Insert**. The *Destination Grouping Insert Table* dialog box is displayed.
2. Enter the appropriate information.
3. Click **Update**. The *Destination Grouping Insert Table* dialog box closes.
4. In the *Destination Grouping Table* window, click **Set**. Your changes are recorded.

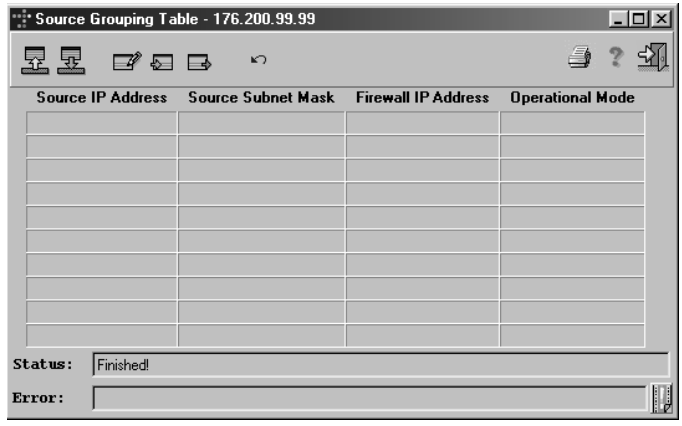
Setting Up Source Grouping

Source grouping allows you to determine which firewalls will handle traffic from a specific source subnet. You use the *Source Grouping Table* window to configure destination grouping.

☞ **To access the Source Grouping Table window:**

- From the FireProof menu, select **Firewalls Advanced Configuration**, select **Grouping** then select **Source Grouping**.

The *Source Grouping Table* window is displayed, as shown below.



The *Source Grouping Table* window includes the following fields:

- **Source IP Address** - The IP Address of the source.
- **Source Subnet Mask** - The subnet mask of the source.
- **Firewall IP Address** - The IP address of the firewall to handle the traffic.
- **Operational Mode** - Whether the firewall will be active or backup for this group.

☞ **To define a group based on source subnet:**

1. In the *Source Grouping Table* window, click **Insert** The *Source Grouping Insert Table* dialog box is displayed.
2. Enter the appropriate information.
3. Click **Update**. The *Source Grouping Insert Table* dialog box closes.
4. In the *Source Grouping Table* window, click **Set**. Your changes are made.

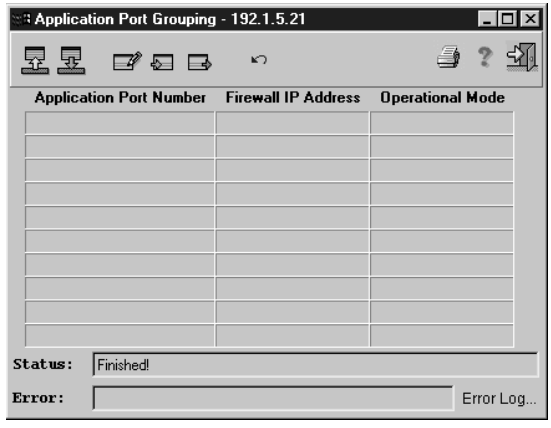
Setting Up Application Grouping

Application grouping allows you to determine which firewalls will handle traffic destined for a specific application port. You use the *Application Port Grouping* window to configure destination grouping.

Note: In order for Application Grouping to work you must have one of these options enabled: **Open New Entry for Different Source Port** and **Select New Firewall for Different Source Port**.

☞ **To access the Application Port Grouping window:**

- From the **FireProof** menu, select **Firewalls Advanced Configuration**, select **Grouping** then select **Application Grouping**. The *Application Port Grouping* window is displayed.



The *Application Port Grouping* window includes the following fields:

- **Application Port Number** - The port number of the traffic. This can be a number from 0-1024, or 'Other'. Use the group "Other" to define which firewalls will handle traffic that is not destined to application ports otherwise grouped. If you don't define an "Other" group, traffic not destined to a grouped application port will be load balanced amongst all of the firewalls defined in the FireProof.
- **Firewall IP Address** - The IP address of the firewall.
- **Operational Mode** - Whether the firewall will be active or backup for this group.

☞ **To define a group based on application port:**

1. In the *Application Port Grouping* window, click **Insert**. The *Application Port Grouping Insert Table* dialog box is displayed.
2. Enter the appropriate information.
3. Click **Update**. The *Application Port Grouping Insert Table* dialog box closes.
4. In the *Application Port Grouping* window, click **Set**. Your changes are made.

Full Path Health Monitoring

You can monitor the full path health of the FireProof to an IP address beyond the network's firewalls. Doing so ensures that the path is open. Note that if you enable Full Path Health Monitoring, firewall operation status will not be reported. The firewall IP address should not be removed at anytime from the *Full Path Health Monitor* window, otherwise their status will not be checked.

Note: Full path health monitoring cannot be used between to FireProofs configured on the same device (using Port Rules).

☞ **To monitor the full path health of a device beyond a specific firewall:**

1. From the **FireProof** menu, choose **Firewall Table**. The *Firewall Table* window is displayed.
2. Select a firewall to check through.
3. Click **Full Path Health Monitoring**. The *Full Path Health Monitor* window is displayed. *Active* indicates that FireProof successfully connected with the IP Address; *Not In Service* indicates that FireProof failed to connect with the IP Address.

☞ **To add IP addresses to the Full Path Health Monitoring Checklist:**

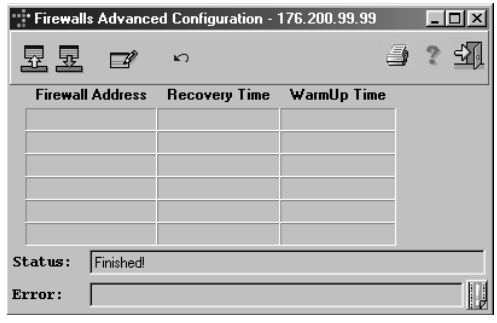
1. From the **FireProof** menu, choose *Firewall Table*. The *Firewall Table* window is displayed.
2. Select a firewall to check through.
3. Click **Full Path Health Monitoring**. The *Full Path Health Monitor* window is displayed.
4. Click **Insert**. The *Connectivity Check Table Insert* window is displayed.
5. In the **Check Address** field, enter the IP address of the remote device to check.
6. Click **Accept**. The *Connectivity Check Table Insert* window closes.
7. In the *Full Path Health Monitor* window, click **Set**. The IP Address is added to the list.

Controlling Traffic to Newly Booted Firewalls

You can control traffic to specific firewalls that have been recently booted. This means that newly booted firewalls won't be overrun by incoming traffic in accordance with the load balancing algorithm. You use the *Firewalls Advanced Configuration* window to control traffic to firewalls.

☞ **To access the Firewalls Advanced Configuration window:**

- From the **FireProof** menu, select **Firewalls Advanced Configuration**, then select **Firewalls**. The *Firewalls Advanced Configuration* window is displayed.



The *Firewalls Advanced Configuration* window includes the following fields:

- **Firewall Address** - The firewall IP address.
- **Recovery Time** - The time, in seconds, during which no data will be sent to this firewall. The time begins from the moment the first firewall is active, usually after the firewall boots.
- **Warm Up Time** - The time, in seconds, beginning after the Recovery Time ends. During this time, clients are sent to this firewall at an increasing rate, so that the firewall can slowly reach its capacity. This option will not function in the cyclic load balancing algorithm.

☞ **To configure traffic flow to a firewall:**

1. In the *Firewalls Advanced Configuration* window, select the firewall you require to edit.

2. Click **Edit**. The *Edit Firewalls Advanced Configuration* dialog box is displayed.
3. Adjust the appropriate information.
4. Click **Update**. The *Edit Firewalls Advanced Configuration* dialog box closes.
5. In the *Firewalls Advanced Configuration* window, click **Set**. Your changes are recorded.

Viewing Active Clients

You can view a list of the clients currently connected to FireProof. You can also find information about a specific client.
You use the *Clients Table* window, a read-only table comprised of the current active sessions, to view a list of clients currently connected to the FireProof.
Note: Using 64M DRAM, FireProof 3.20 supports up to 350,000 entries in the Client Table. Using 128M DRAM, FireProof 3.20 supports up to 1,000,000 entries in the Client Table.

☞ **To access the Clients Table window:**

- From the **FireProof** menu, select **Clients** and then choose **Clients Table**. The *Clients Table* window is displayed.
  The *Clients Table* window displays the following:
  - **Client Address** - The IP address of the client.
  - **Destination Address** - The IP address of the destination.
  - **Firewall IP** - The IP address of the firewall that the client is attached to.
  - **Last Activity Time** - The time that the last packet was transferred during the current session.
  - **Attachment Time** - The time that the client was first attached to the firewall.

☞ **To find a specific client:**

1. From the **FireProof** menu, select **Clients** and then choose **Find Client**. The *Client Searching* window is displayed.
2. In the **Client IP** field, enter the IP address of the client.
3. Click **Refresh**. Information about the client is displayed.

Defining the Number of Retrievable Entries

The number of entries retrieved for any table in Configware can be pre-defined in the Configuration part of the *General Options* window. This is particularly beneficial for the Client Table, which supports 1,000,000 entries in the Application Switch platform, and the *Client Table* window cannot accommodate this quantity of entries.

☞ **To define the number of retrievable entries:**

1. From the opening *Configware* window, click **Options**. The *General Options* window is displayed.
2. Select **Configuration** from the right-hand side of the window.
3. From the three fields displayed in the **SNMP/TFTP Configuration** area, select the **SNMP Get Next Limit** field.
4. Adjust the number in the field to the required number of retrievable entries to be displayed in the Configware software tables and then click **Set**.
5. Click **Refresh** in the *Client Table* window, for example, to view the pre-defined number of retrievable entries.

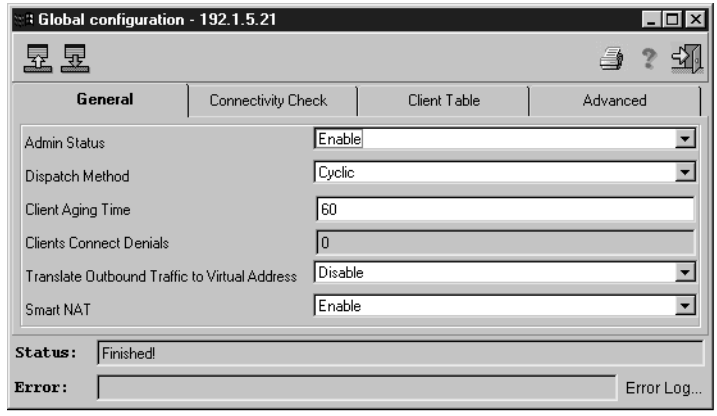
Global Configuration

You use the *Global Configuration* window to monitor, insert and edit global configuration information.

☞ **To access the Global Configuration window:**

- From the **FireProof** menu, choose **Global Configuration**.

The *Global Configuration* window is displayed.



The *Global Configuration* window includes the following fields:

General Tab

- **Admin. Status** - The status of FireProof; can be either of the following options:
  - *Enable* - FireProof is active. All users are balanced between the Firewalls.
  - *Disable* - FireProof is inactive. Clients connecting to the device will be sent to the default firewall.
- **Dispatch Method** - The method used to determine to which firewall the traffic will be directed. Note that when port rules are enabled, only servers accessible via the designated port will be taken into account.
  - *Cyclic* - Directs traffic to each firewall one by one.
  - *Least Amount Traffic* - Directs traffic to the firewall with the least traffic.
  - *Fewest Number of Users* - Directs traffic to the firewall with the least amount of users.
  - *NT-1* - Queries the firewalls for Windows NT SNMP statistics. According to the reported statistics, FireProof redirects the clients to the least busy firewall. To use this method the firewalls must be firewalls for Windows NT. The parameters are considered according to the weights configured in the first Windows NT weights scheme.

- *NT-2* - Similar to nt-1, but uses the second weights scheme.
- *Private-1* - Queries the Firewalls for private SNMP parameters, as defined in the first private weights scheme. The ratios of users on the firewalls will be balanced according to the reported statistics.
- *Private-2* - Same as private-1, using the second weights scheme.
- *Fewest Bytes Number* - Directs traffic to the firewall through which the least number of bytes has passed.

- **Client Aging Time** - The amount of time a non-active client is kept in the clients table (in seconds). As long as a client is kept in the Clients Table, the client is attached to the same firewall.
- **Client Connect Denials** - Indicates the number of connection requests from clients that were denied by the dispatcher.
- **Timeout for SYN** - This feature improves the FireProof's SYN attack resilience. Enter the number of seconds that the FireProof assigns to a new session started by a SYN packet (default is 'Regular aging time'). The value can be a number between 1 and 10. 'Regular aging time' indicates that this feature is disabled (i.e. every new session will be assigned the user configured aging time from its beginning).
- **Translate Outbound Traffic to Virtual Address** - When using virtual IP addresses, determines whether sessions originated by hosts NATed on the firewalls should use the VIP address as a source address or not.
  - *Enable* - Changes a NAT address to a virtual IP address.
  - *Disable* - Does not change NAT addresses.
- **Smart NAT** - Enables the Smart NAT feature including Dynamic Static and No NAT.

Connectivity Check Tab

- **Check Connectivity Status** - Enables/disables firewall polling.
- **Check Connectivity Method** - Indicates the method of checking for firewall availability. The value can be Ping or any TCP port number entered manually. If Ping is selected, FireProof pings the firewalls to verify valid communication. Any other value causes FireProof to attempt to connect to the specified application port. If the operation fails, the firewall is considered down.

- **Polling Interval** - How often FireProof polls the firewalls in seconds.
- **Number of Retries** - After how many unanswered polling attempts is a firewall considered inactive.

Client Table Tab

- **Open New Entry For Different Source Port** - When enabled, different sessions from the same client to the same destination are counted separately, but all use the same firewall. Enabling this option can produce finer load balancing and at the same time ensure all sessions from the same client to the same server use the same firewall. When disabled, all the sessions of one client are considered a single session, to enable better performance.
- **Select New Firewall For Different Source Port** - When enabled, different sessions opened by a client's application to the same destination will be served by different firewalls, according to the load balancing algorithms. This option overrides the New Entry On Source Port option.
- **Session Tracking** - When enabled, both inbound and outbound traffic will be handled. When disabled, FireProof will only manage outbound traffic, Client Table Mode, below, will be set to layer 3 and New Entry on Source Port and Select Server on Source Port will be disabled.
- **Client Mode** - Indicates what layer of address information will be used to categorize packets in the client table.
  - *Layer 3* - Source and destination IP addresses only. An entry exists in the Client Table for each source IP and destination IP combination of packets passing through the device.
  - *Layer 4* - Source and destination IP addresses and TCP/UDP port information. An entry exists in the Client Table for each source IP, source port, destination IP and destination port combination of packets passing through the device.
  - *Client IP Only* - Enables traffic to be load balanced based on the IP address of the client only.
  - *Destination IP Only* - Enables traffic to be load balanced based on the IP address of the destination only.

- **Remove Entry at Session End** - When enabled client entries are immediately removed from the Client Table when the client session ends.

Advanced Tab

- **Identify Firewall by Port** - When enabled, firewalls' MAC address and incoming ports are checked to determine from which firewall traffic originated. When disabled, only the source MAC is checked. This option should be enabled only when using port rules and when firewalls use the same MAC on different physical ports.
- **Port Hashing** - When disabled, client table hashing is performed according to source IP and destination IP. When enabled, client table hashing is performed with the aforementioned as well as source port. This can be enabled only when Client Table Mode is set to layer 4 and Select New Firewall When Source Port Different is enabled. Note that changes here take place after device reboot.

☞ **To set FireProof global configuration:**

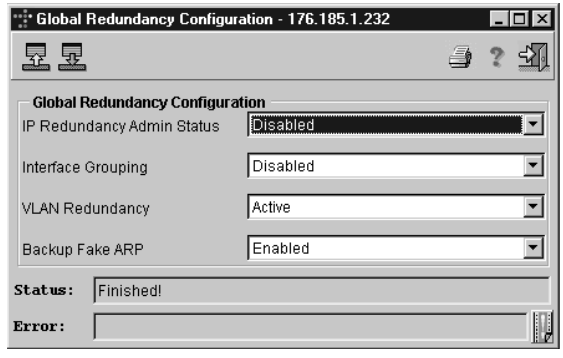
1. From the **FireProof** menu, choose **Global Configuration**. The *Global Configuration* window is displayed.
2. Adjust the appropriate values.
3. Click **Set**. Your changes are recorded.

Setting Up Redundant FireProof Devices

You can configure more than one FireProof device on a network so that one will act as a back-up to a main device. In this case, a failure of any network interface on the main FireProof will fail the whole device, and the backup device, previously idle, will take over all activity.
Note: Two FireProof devices in a network should be configured in exactly the same way with the exception of the redundancy configuration and IP addresses.

☞ **To enable the back-up device:**

1. From the **FireProof** menu, select **Redundancy** and then choose **Global Configuration**. The *Global Redundancy Configuration* window is displayed, as shown below.



2. In the *Global Redundancy Configuration* window, ensure that **IP Redundancy Admin Status** is enabled.
3. Ensure that **Interface Grouping** is disabled.
4. Ensure that **VLAN Redundancy** is set to active, only when the device is configured in *VLAN Redundancy* mode. This means no traffic is forwarded by this redundant or back-up device, if the main device is active.
   Note: If your network is set-up as a VLAN, configure the back-up device before you configure your main device.
5. Enable **Backup Fake ARP** to allow the backup device to perform a fake ARP. Fake ARP is an ARP packet sent by the backup device that

announces when the main device is back online. The default is enabled.
Note: In networks with layer 3 switches, the Fake ARP may confuse the switch during the redundancy process. In this case, disable this option.

6. Click **Set**. Your changes are made.

☞ **To enable the main device:**
Note: Before you enable the main device, ensure that VLAN Redundancy Device Mode is set to Regular.
1. From the **FireProof** menu, select **Redundancy** and then choose **Global Configuration**. The *Global Redundancy Configuration* window is displayed.
2. In the *Global Redundancy Configuration* window, ensure that that **IP Redundancy Admin Status** is disabled.
3. Ensure that **Interface Grouping** is enabled.
4. Ensure that **VLAN Redundancy** is set Active or Backup depending on your requirements.
Note: If your network is working in VLAN mode, the Firewall configuration does not need to be changed but clients should be configured to the FireProof, so that it acts as their Default Gateway or next hop router.

5. Click **Set**. Your changes are made.

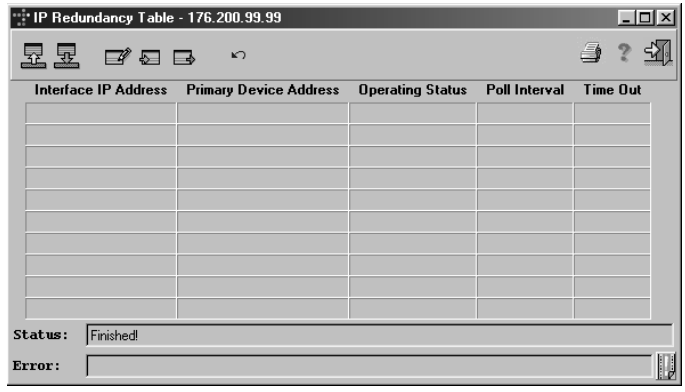
Configuring IP Router Redundancy

You should define the interfaces of the backup device and the associated interfaces of the main FireProof. When the backup FireProof detects a failure at the main FireProof interfaces, it will take over.

You use the *IP Redundancy Table* window to configure redundancy.

☞ **To access the IP Redundancy Table window:**
- From the **FireProof** menu, select **Redundancy** and then choose **Redundancy Table**.

The *IP Redundancy Table* window is displayed.



The *IP Redundancy Table* window includes the following fields:

- **Interface IP Address** - The IP address of the backup interface.
- **Primary Device Address** - Refers to the corresponding IP address of the interface on the main FireProof, which this Fireproof is backing up.
- **Operating Status** - The redundancy status (Read-only):
  - *Active* - The backup FireProof is now active on this interface.
  - *Inactive* - The backup FireProof is not active.
- **Poll Interval** - The polling interval for the main FireProof interfaces, in seconds. If the interval is 0, the FireProof is not polled.
- **Time Out** - The interval, in seconds, during which the FireProof must respond. If the main FireProof does not respond within this interval, it is considered inoperative. If Time Out is 0, the backup FireProof ignores the row.

☞ **To setup IP router redundancy:**

1. In the *IP Redundancy Table* window, click **Insert**. The *IP Redundancy Table Insert* dialog box is displayed.
2. Adjust the appropriate parameters.
3. Click **Update**. The *IP Redundancy Table Insert* dialog box closes.
4. In the *IP Redundancy Table* window, click **Set**. Your changes are made.

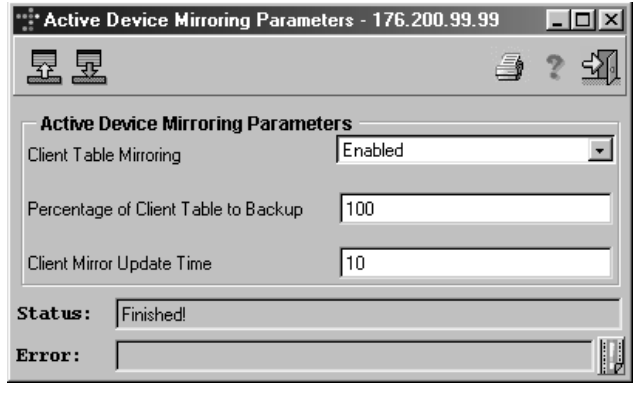
Configuring Mirroring

Mirroring enables a backup redundant device to mirror the Client Table of an active device. The backup device informs the main device to which IP address updates should be sent, the main device sends snapshot information about the Client Table updates every predefined interval. If the active device fails, the backup device can seamlessly resume the sessions.

You use the *Active Device Mirroring Parameters* and the *Backup Device Mirroring Parameters* windows to configure mirroring.

☞ **To access the Active Device Mirroring Parameters window:**

- From the **FireProof** select **Redundancy**, then **Mirroring** and then choose **Active Device Parameters**. The *Active Device Mirroring Parameters* window is displayed.

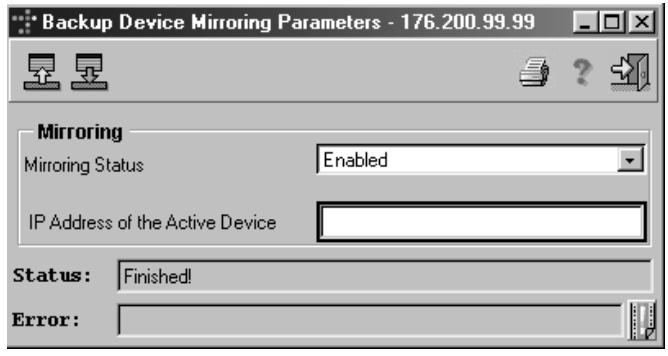


The *Active Device Mirroring Parameters* window contains the following fields:

- **Client Table Mirroring** - Enables or disables the mirroring of the Client Table (i.e., sends the mirror messages).
- **Percent of Client Table to Backup** - The percentage of the client table to send to the backup device.
- **Client Mirror Update Time** - How often to send information to the backup device.

☞ **To access the Backup Device Mirroring Parameters window:**

- From the **FireProof** select **Redundancy**, then **Mirroring** and then choose **Backup Device Parameters**. The *Backup Device Mirroring Parameters* window is displayed.



The *Backup Device Mirroring Parameters* window contains the following fields:

- **Mirroring Status** - Enable or disables the mirroring feature.
- **IP Address of the Active Device** - The IP address to which the traffic containing the mirrored information is sent.

☞ **To set up mirroring:**

1. In the *Active Device Mirroring Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are made.
3. Close the *Active Device Mirroring Parameters* window.
4. From **FireProof** menu select **Redundancy**, then **Mirroring** and then choose **Backup Device Parameters**. The *Backup Device Mirroring Parameters* window is displayed.
5. Adjust the appropriate values.
6. Click **Set**.
7. Restart the device.

Configuring a Remote Virtual IP Address

Most FireProof installations require two devices, one for internal and another for external use. In this setup, the internal FireProof can use a remote connectivity check to check the connectivity between the firewalls to the external FireProof. This connectivity check is typically performed by a ping sent from the internal to the external device, or vice versa.

In a redundant configuration, the redundancy scheme ensures that when the main device is not operating, the backup device backs up the main device transparently. This means the backup device answers ARPs with the IP address of the main device, therefore ensuring smooth failover. However, the backup device does not respond to pings, or SNMP requests in the same way, so as not create administrative problems. In this situation, when a main/external device fails, the backup device does not answer remote connectivity checks sent from the internal device.

This problem can be solved using a remote Virtual IP. The remote Virtual IP is always online and is usually owned by the main device, but can also belong to the backup device, should the main device fail. It should be used as the remote connectivity check IP address in internal FireProof. You use the *Remote Virtual IP* window to configure remote virtual IP addresses.

☞ **To access the Remote Virtual IP window:**

- From the **FireProof**, choose **Remote Virtual IP**. The *Remote Virtual IP* window is displayed.
  The *Remote Virtual IP* window contains the following fields:
  - **Virtual Connectivity IP** - The virtual IP address that you will have devices check for.
  - **Virtual Connectivity Mode** - Whether the device is a regular device or a backup device.

☞ **To set up a remote virtual IP address:**

1. In the *Remote Virtual IP* window, adjust the appropriate values.
2. Click **Set**. Your changes are made.
3. Make sure to configure the remote virtual IP on the main device and backup device. Also, make sure that the device performing the remote connectivity checks queries this address.

Defining Load Balancing Algorithms

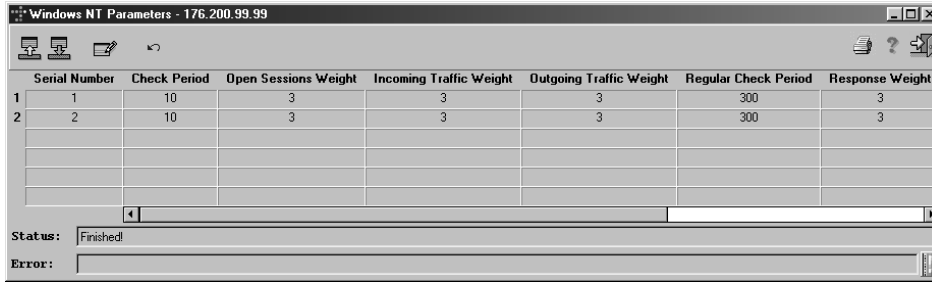
You choose the FireProof load balancing method in the **General** tab of the *Global Configuration* window, using the **Dispatch Method** dropdown list. In addition to the methods provided - Cyclic, Least Traffic, and Least Users Number - you can also use native Windows NT load balancing algorithms or private algorithms.

Windows NT Load Balancing

There are two Windows NT servers load balancing algorithms. These parameters are used to load balance the users of the farms that are configured with nt-1 or nt-2 dispatch methods. You use the *Windows NT Parameters* window to configure the Windows NT load balancing algorithm.

☞ **To access the Windows NT Parameters window:**

- From the **FireProof** select **Load Balancing Algorithms**, then and then choose **Windows NT Parameters**. The *Windows NT Parameters* window is displayed.



The *Windows NT Parameters* window includes the following fields:

- **Serial Number** - The serial number of the scheme. Scheme number 1 is used for dispatch method nt-1, etc.
- **Check Period** - The time interval between queries for the frequently updating parameters (number of open sessions, amount of traffic).
- **Open Sessions Weight** - The relational weight for considering the number of active sessions on the server.

- **Incoming Traffic Weight** - The relational weight for considering the amount of traffic coming into the server.
- **Outgoing Traffic Weight** - The relational weight for considering the amount of traffic going out of the server.
- **Regular Check Period** - The time interval between queries for other less dynamic parameters (average response time, limits on users and TCP connections).
- **Response Weight** - The relational weight for considering the average response time of the server.
- **Users Limit Weight** - The relational weight for considering the limit on the number of logged in users on the server.
- **TCP Limit Weight** - The relational weight for considering the limit of TCP connections to the server.
- **NT Community** - The community name to use when addressing the server.
- **Retries** - Defines how many unanswered requests for a variable will make it be ignored in the load balancing decision.

☞ **To configure Windows NT load balancing:**

1. In the *Windows NT Parameters* window, choose a server.
2. Click **Edit**. The Windows NT Parameters Edit dialog box is displayed.
3. Adjust the appropriate values.
4. Click **Update**. The *Windows NT Parameters Edit* dialog box closes.
5. In the *Windows NT Parameters* window, click **Set**. The algorithm is set.

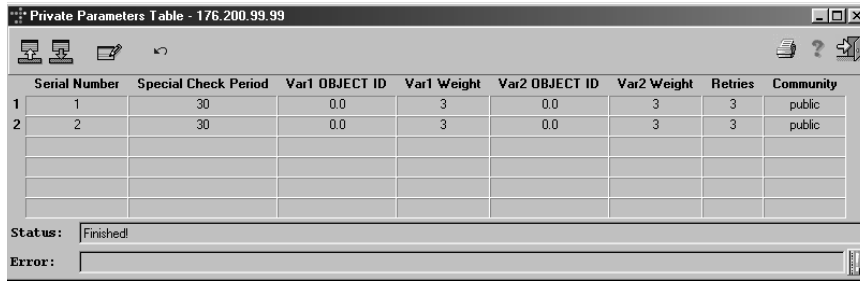
Private Parameters

There are two private servers load balancing algorithms. These parameters are used to load balance the users of the farms that are configured with private-1 or private-2 dispatch methods. You use the Private Parameters Table window to configure private load balancing algorithms.

☞ **To access the Private Parameters Table window:**

- From the **FireProof** select **Load Balancing Algorithms**, and then choose **Private Parameters**.

The *Private Parameters Table* window is displayed.



The *Private Parameters Table* window includes the following fields:

- **Serial Number** - The serial no. of the scheme. Scheme no. 1 is used for dispatch method private-1, etc.
- **Special Check Period** - The time interval between queries for the requested parameters.
- **Var1 Object ID** - The SNMP ID of the first private variable to check.
- **Var1 Weight** - The relational weight for considering the value of the first parameter.
- **Var2 Object ID** - The SNMP ID of the second private variable to check.
- **Var2 Weight** - The relational weight for considering the value of the second parameter.
- **Retries** - Describes how many unanswered requests for a variable will make it be ignored in the load balancing decision.
- **Community** - The community name to use when addressing the server.

☞ **To configure private parameters load balancing:**

1. In the *Private Parameters Table* window, choose a server.
2. Click **Edit**. The *Private Parameters Table Edit* dialog box is displayed.
3. Adjust the appropriate values.
4. Click **Update**. The *Private Parameters Table Edit* dialog box closes.
5. In the *Private Parameters Table* window, click **Set**. The algorithm is set.

Configuring Router Settings

FireProof offers IP routing compliant with RFC1812 router requirements. Dynamic addition and deletion of IP interfaces is supported. IP routing occurs at full Ethernet wire speed (10Mbps) and extremely low latency is maintained.

IP router supports RIP I, RIP II and OSPF. OSPF is an intra-domain IP routing protocol, intended to replace RIP in bigger or more complex networks. OSPF and its MIB are supported as specified in RFC 1583 and RFC 1850, with some limitations.

The various routing protocols can access each other's direct routing tables for routing information, allowing packets to "leak" between routing protocols.

IP interfaces must be configured properly for a Radware device to work as an IP router. IP interfaces consist of two parts: An *IP Address*, and an *IP Network Mask*.

- **IP Address** - The IP Address is defined for a physical port or VLAN.
- **IP Network Mask** - The IP Network Mask is determined by your network setup.

A particular IP Address together with a particular IP Network Mask address comprises an IP interface. Radware devices will perform IP routing between all defined IP interfaces.

This section includes the following information:

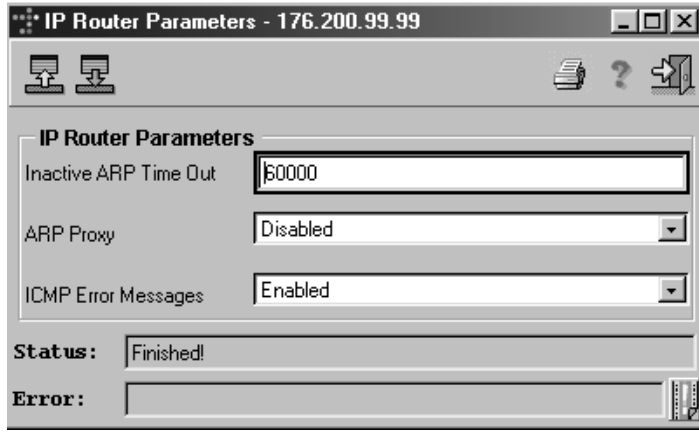
- **Adjusting Operating Parameters**, below.
- **Configuring Interface Parameters**, page 3-57.
- **RIP Protocol Parameters**, page 3-58.
- **RIP Interface Parameters**, page 3-60.
- **OSPF Protocol Parameters**, page 3-61.
- **OSPF Interface Parameters**, page 3-63.
- **OSPF Area Parameters**, page 3-65.
- **OSPF Link State Database**, page 3-66.
- **OSPF Neighbor Table**, page 3-67.
- **Configuring the Router**, page 3-68.
- **ARP Addresses**, page 3-69.

Adjusting Operating Parameters

You use the *IP Router Parameters* window to monitor, add and edit router settings.

☞ **To access the IP Router Parameters window:**

- From the **Router** select **IP Router**, and then choose **Operating Parameters**. The *IP Router Parameter*s window is displayed, as shown below.



The *IP Router Parameters* window contains the following fields:

- **Inactive ARP Time Out** - How many seconds can pass between ARP requests concerning an entry in the ARP table. After this period, the entry is deleted from the table.
- **ARP Proxy** - Whether the device responds to ARP requests for nodes located on a different direct sub-net. The device responds with its own MAC address. When ARP Proxy is disabled, the device responds only to ARP requests for its own IP addresses.
- **ICMP Error Messages** - Whether ICMP error messages are generated.

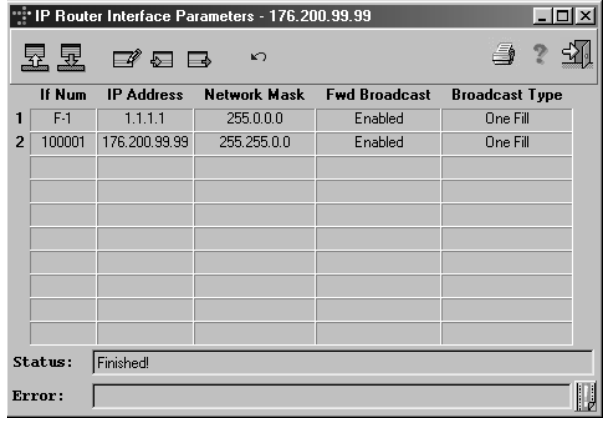
☞ **To adjust IP Router operating parameters:**

1. In the **IP Router Parameters** window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

Configuring Interface Parameters

☞ **To access the IP Router Interface Parameters window:**

- From the Router select **IP Router**, and then choose **Interface Parameters**. The *IP Router Interface Parameters* window is displayed, as shown below.



The *IP Router Interface Parameters* window includes the following fields:

- **IP Address** - IP address of the interface.
- **Network Mask** - Associated subnet mask.
- **If Num** - Interface Number of the interface. If the interface is a VLAN, the included interfaces are listed in the box in the *Edit* window.
- **Fwd Broadcast** - Whether the device forwards incoming broadcasts to this interface.
- **Broadcast Type** - Fill the host ID in the broadcast address with ones or zeros.

☞ **To configure IP Router interface parameters:**

1. In the *IP Router Interface Parameters* window, click **Insert**. The *IP Router Interface Parameters Insert* dialog box is displayed.
2. Adjust the appropriate values.
3. Click **Update**. The *IP Router Interface Parameters Insert* window closes.
4. In the IP Router Interface Parameters window, click **Set**. Your changes are recorded.

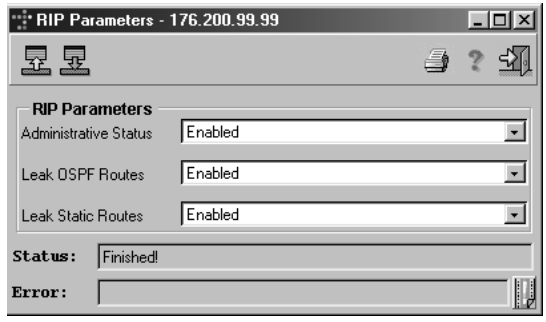
RIP Protocol Parameters

You use the *RIP Parameters* window to set RIP protocol parameters.

☞ **To access the RIP Parameters window:**

- From the **Router** menu, select **RIP** and then choose **Parameters**.

The *RIP Parameters* window is displayed, as shown below.



The *RIP Parameters window* contains the following fields:

- **Administrative Status** - The administrative status of the RIP in the router. Disabled means the process is not active on any interfaces.
- **Leak OSPF Routes** - Controls redistribution of routes from OSPF to RIP. When this parameter is enabled, all routes learned via OSPF are advertised into RIP.
- **Leak Static Routes** - Controls redistribution of routes from static routes to RIP. When this parameter is enabled, all static routes learned via static are advertised into RIP.

☞ **To edit RIP parameters:**

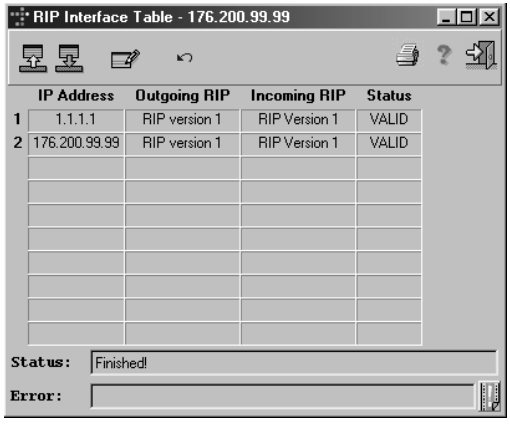
1. In the *RIP Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

RIP Interface Parameters

You use the *RIP Interface Table* window to set and edit RIP interface parameters.

☞ **To access the RIP Interface Table window:**

- From the **Router** menu, select **RIP** and then choose **Interface Parameters**. The *RIP Interface Table* window is displayed, as shown below.



The *RIP Interface Table* window includes the following fields:

- **IP Address** - The IP address of the current interface.
- **Outgoing RIP** - The type of RIP to be sent.
  - *RIP Version 1* - Sending RIP updates compliant with RFC 1058.
  - *RIP Version 2* - Multicasting RIP-2 updates.
  - *Do Not Send* - No RIP updates are sent.
- **Incoming RIP** - The type of RIP to be received.
  - *RIP 1* - Accepting RIP 1.
  - *RIP 2* - Accepting RIP 2.
  - *Do Not Receive* - No RIP updates are accepted.
- **Status** - The status of the RIP in the router.

☞ **To edit RIP parameters:**

1. In the *RIP Interface Table* window, select the interface you require to edit.
2. Click **Edit**. The *RIP Interface Table Edit* dialog box is displayed.
   In addition to the parameters listed above, the *RIP Interface Table Edit* dialog box includes the following:
   - **Default Metric** - Metric for the default route entry in RIP updates originated on this interface. Zero indicates that no default route should be originated; in this case, a default route via another router may be propagated.
   - **Auto Send** - When this parameter is enabled, this device advertises RIP messages with the default metric only. This allows some stations to learn the default router address. If the device detects another RIP message, Auto Send is disabled. Enable this to minimize network traffic when FireProof is the only router on the network.
   - **Virtual Distance** - Virtual number of hops assigned to the interface. This enables fine-tuning of the RIP routing algorithm.
3. Click **Update**. The *RIP Interface Table Edit* dialog box closes.
4. In the *RIP Interface Table* window, click **Set**. The changes are reflected in the RIP Interface Table list.

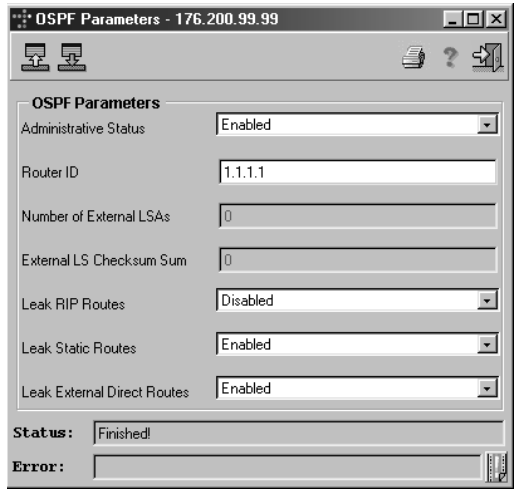
OSPF Protocol Parameters

You use the *OSPF Parameters* window to set OSPF operating parameters.

☞ **To access the OSPF Parameters window:**

- From the **Router** menu, select **OSPF** then choose **Operation Parameters**.

The *OSPF Parameters* window is displayed.



The *OSPF Parameters* window includes the following fields:

- **Administrative Status** - The administrative status of the OSPF in the router. Enabled means that the OSPF process is active on at least one interface. Disabled means the process is not active on any interfaces.
- **Router ID** - The ID number of the router. To ensure uniqueness the router ID should equal one of the router IP addresses.
- **Number of External LSAs** - The number of external Link-State Advertisements in the link-state database.
- **External LS Checksum Sum** - The sum of LS checksums of external LS advertisements contained in the LS database. Use this sum to determine if there has been a change in a router's LS database, and to compare the LS database of two routers.
- **Leak RIP Routes** - Controls the redistribution of routes from RIP into OSPF. When this parameter is enabled, all routes inserted into the IP routing table via SNMP are advertised into OSPF as external routes.
- **Leak Static Routes** - Controls redistribution of routes from static routes to RIP. When this parameter is enabled, all static routes learned via static are advertised into RIP.

- **Leak External Direct Routes** - Controls redistribution of direct routes which are external to OSPF into OSPF. If this parameter is enabled all external routes are advertised into OSPF as external routes.

☞ **To set OSPF operation parameters:**

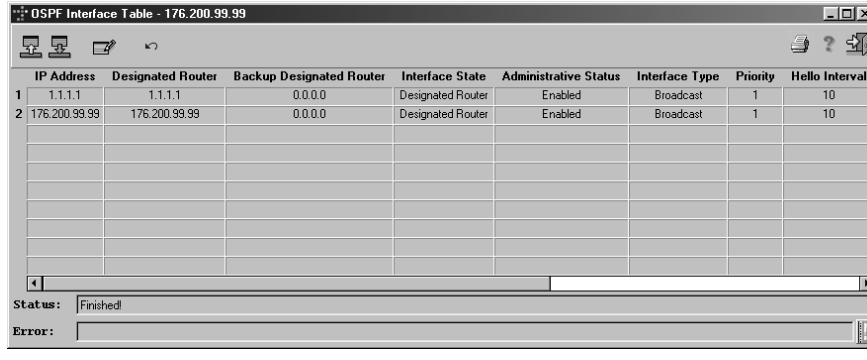
1. In the *OSPF Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

OSPF Interface Parameters

You use the *OSPF Interface Table* window to set OSPF interface parameters.

☞ **To access the OSPF Interface Table window:**

- From the **Router** menu, select **OSPF** then choose **Interface Parameters**. The *OSPF Interface Table* window is displayed.



The *OSPF Interface Table* window includes the following fields:

- **IP Address** - The IP Address of this OSPF interface.
- **Designated Router** - The IP Address of the designated router.
- **Backup Designated Router** - The IP Address of the backup designated router.
- **Interface State** - The interface state of the OSPF interface:
  - *Down* - The OSPF interface is down.
  - *Loopback* - The OSPF interface is in the Loopback state.

- *Waiting* - The OSPF interface is currently waiting.
- *Point to Point* - The OSPF interface is in the point to point state.
- *Designated Router* - The OSPF interface is the designated router.
- *Backup Designated Router* - The OSPF interface is the backup designated router.
- *Other Designated Router* - Other routers are the designated and backup routers.

- **Admin. Status** - The administrative status of the OSPF in the router. Enabled means that the OSPF process is active on at least one interface. Disabled means the process is not active on any interfaces.
- **Interface Type** - The OSPF interface type. Broadcast LANs are broadcast type, x.25 and Frame Relay are NBMA type, and point-to-point LANs are Point to Point type.
- **Priority** - The priority of this interface. The value 0 means that this router is not eligible to become the designated router on the current network. If more than one routers has the same priority then the router ID is used.
- **Hello Interval** - The number of seconds between Hello packets. All routers attached to a common network must have the same Hello Interval.
- **Time Before Declare Router Dead** - The number of seconds that a router's hello packets have not been seen before the router's neighbors declare the router down. The Time Before Declare Router Dead value must be a multiple of the Hello Interval. All routers attached to a common network must have the Time Before Declare Router Dead value.
- **Interface Authentication Key** - The authentication key for the interface.
- **Authentication Type** - The type of authentication key for the interface.
- **Metric Value** - The metric for this type of service on the interface.

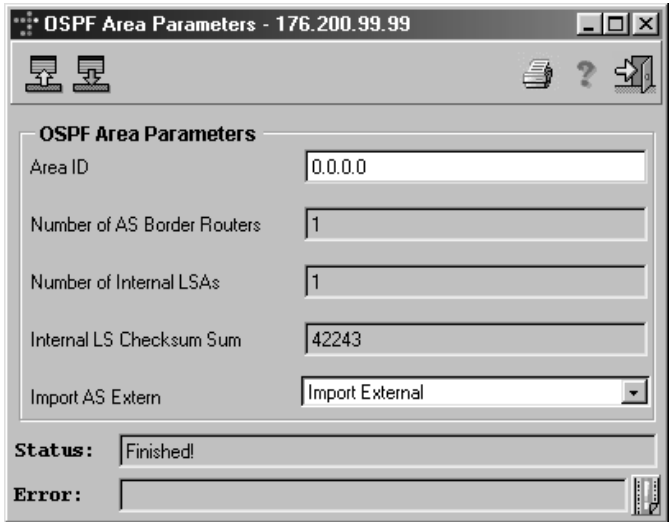
☞ **To edit OSPF interface parameters:**

1. In the *OSPF Interface Table* window, click **Edit**. The *OSPF Interface Table Edit* dialog box is displayed.
2. Adjust the appropriate values.
3. Click **Update**. The *OSPF Interface Table Edit* dialog box is displayed.
4. In the O*SPF Interface Table* window, click **Set**. Your changes are recorded.

OSPF Area Parameters

☞ **To access the OSPF Area Parameters window:**

- From the **Router** menu, select **OSPF** then choose **Area Parameters**. The *OSPF Area Parameters* window is displayed.



The *OSPF Area Parameters* window includes the following fields:

- **Area ID** - The IP address of the area.
- **Number of AS Border Routers** - The total number of Autonomous System border routers reachable within this area. This number is initially zero and is calculated in each SPF pass.

- **Number of Internal LSAs** - The number of internal link-state advertisements in the link-state database.
- **Internal LS Checksum Sum** - The sum of LS checksums of internal LS advertisements contained in the LS database. Use this sum to determine if there has been a change in a router's LS database, and to compare the LS database of two routers.
- **Import AS Extern** - Whether or not to import autonomous system external link advertisements.

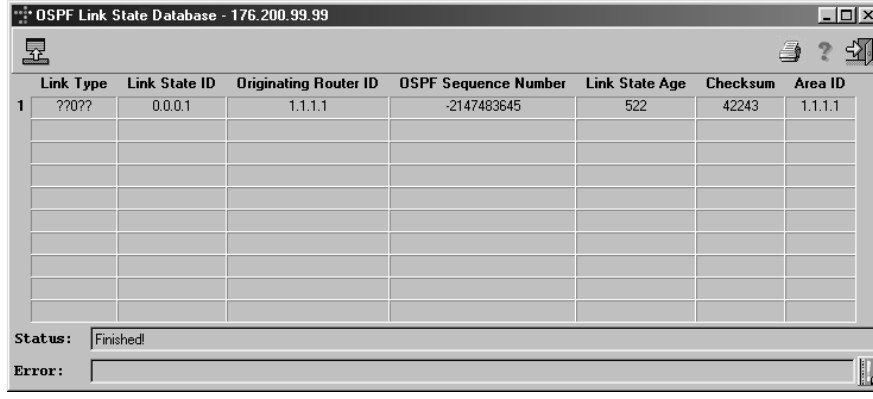
☞ **To adjust the OSPF area parameters:**

1. In the *OSPF Area Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

OSPF Link State Database

☞ **To access the OSPF Link State Database window:**

- From the **Router** menu, select **OSPF** then choose **Link State Database**. The *OSPF Link State Database* window is displayed, as shown below.



The *OSPF Link State Database* window contains the following fields:

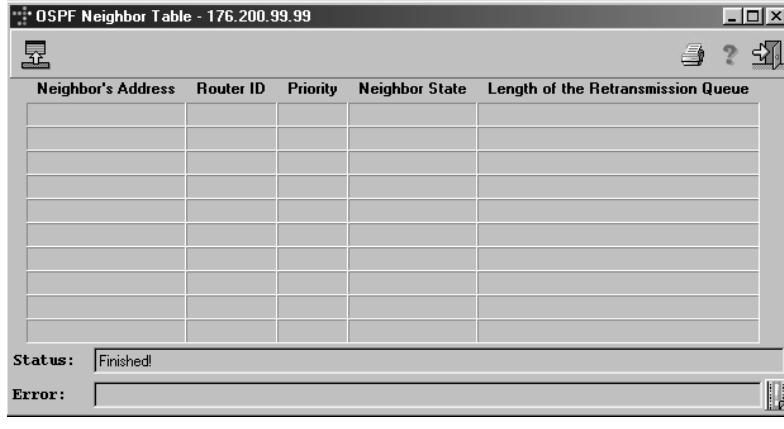
- **Link Type** - Each link state advertisement has a specific format. The link can be a Router Link, Network Link, External Link, Summary Link or Stub Link.

- **Link State ID** - Identifies the piece of the routing domain that is described by the advertisement. It can be either a router ID or an IP address.
- **Originating Router ID** - Identifies the originating router in the autonomous system.
- **OSPF Sequence Number** - The number for the link. Use this parameter to detect old and duplicate links state advertisements. The larger the sequence number the more recent the advertisement.
- **Link State Age** - The age of the link state advertisement in seconds.
- **Checksum** - This parameter is a checksum of the complete contents of the advertisement, except for the Age value.
- **Area ID** - The IP address of the area.

OSPF Neighbor Table

☞ **To access the OSPF Neighbor Table window:**

- From the **Router** menu, select **OSPF** and then choose **Neighbor Table**. The *OSPF Neighbor Table* window is displayed.



The *OSPF Neighbor Table* window contains the following fields:

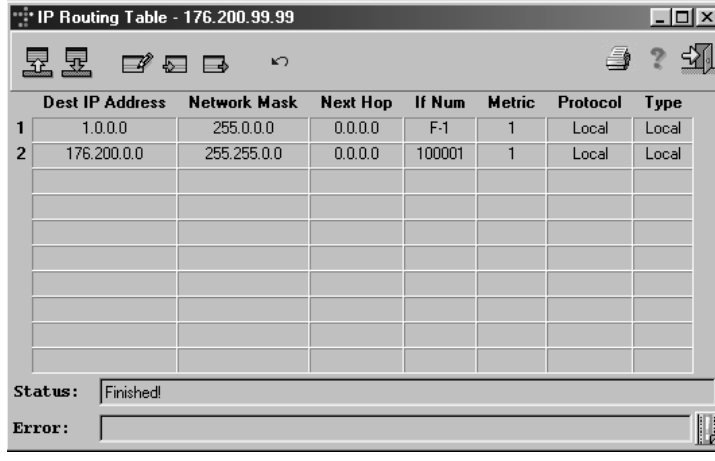
- **Neighbor Address** - The IP address of this neighbor.
- **Router ID** - A unique identifier for the neighboring router in the autonomous system.
- **Priority** - The priority of this neighbor. A priority of 0 means that this neighbor is not eligible to become the designated router on this network.
- **Neighbor State** - The state of the relationship with neighbor: Down, Attempt, Init, Two Way, Exchange Start, Exchange, Loading, Full.
- **Length of the Retransmission Queue** - The current length of the retransmission queue.

Configuring the Router

You configure the router using the *IP Routing Table* window.

☞ **To access the IP Routing Table window:**

- From the **Router** menu, select **Routing Table**. The *IP Routing Table* window is displayed.



The *IP Routing Table* window includes the following fields:

- **Dest IP Address** - The destination IP address of this router.
- **Network Mask** - The destination network mask of this route.
- **Next Hop** - Address of the next system of this route, local to the interface.
- **If Number** - The IF Index of the local interface through which the next hop of this route is reached.
- **Metric** - Number of hops to the destination network.
- **Protocol** - Through which protocol the route is known.
- **Type** - How remote routing is handled.
  - *Remote* - Forwards packets.
  - *Reject* - Discards packets.

☞ **To add a static node to the route:**

1. In the *IP Routing Table* window, click **Insert**. The *IP Routing Table Insert* dialog box is displayed.
2. Adjust the appropriate values.
3. Click **Update**. The *IP Routing Table Insert* dialog box closes.
4. In the *IP Routing Table* window, click **Set**. Your changes are recorded.

☞ **To edit an existing node on the route:**

1. In the *IP Routing Table* window, select a table entry.
2. Click **Edit**. The *IP Routing Table Edit* dialog box is displayed.
3. Adjust the appropriate values.
4. Click **Update**. The *IP Routing Table Edit* dialog box closes.
5. In the *IP Routing Table* window, click **Set**. Your changes are recorded.

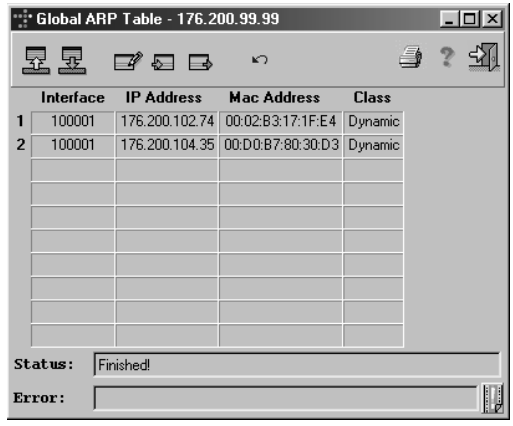
ARP Addresses

You use the *Global ARP Table* window to monitor, set and edit ARP addresses on the local route.

☞ **To access the Global ARP Table window:**

- From the **Router** menu, select **ARP Table**.

The *Global ARP Table* window is displayed, as shown below.



The *Global ARP Table* window includes the following fields:

- **Interface Number** - The interface number on which the station resides.
- **IP Address** - The station's IP address.
- **MAC Address** - The station's MAC address.
- **Class** - Entry type:
  - *Dynamic* - The entry is learned from the ARP protocol. If the entry is not active for a predetermined time, the node is deleted from the table.
  - *Static* - The entry has been configured by the network management station and is permanent.

☞ **To define new ARP addresses:**

1. In the *Global ARP Table* window, click **Insert**. The *Global ARP Table Insert* dialog box is displayed.
2. Adjust the appropriate values.
3. Click **Update**. The *Global ARP Table Insert* dialog box closes.
4. In the *Global ARP Table* window, click **Set**. Your changes are recorded.

☞ **To edit an existing ARP address:**

1. In the *Global ARP Table* window, choose the ARP address you require to edit.
2. Click **Edit**. The *Global ARP Table Edit* dialog box opens.
3. Adjust MAC Address.
4. Click **Update**. The *Global ARP Table Edit* dialog box closes.
5. In the *Global ARP Table* window, click **Set**. Your changes are recorded.

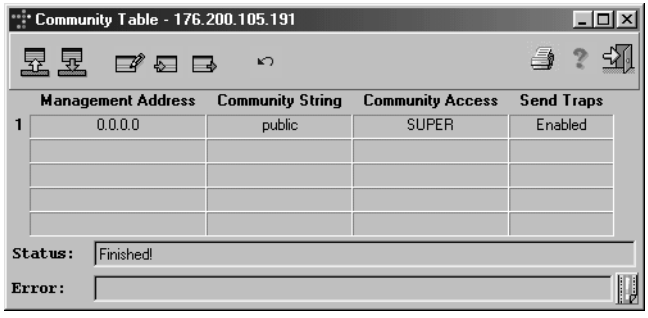
Setting Up Security

Configuring Management Station Access

You can define the level of access different management stations have to FireProof. You use the *Community Table* window to configure access privileges. To view this window you must have super access rights.

☞ **To insert a new community management station:**

1. From the **Security** menu, choose **Community Table**. The *Community Table window* is displayed.



The *Community Table* window shows the following for each station that can manage the device:

- **Management Address:** IP address of the management station. The 0.0.0.0 address enables any management address.
- **Community String:** Community name of the management station.
- **Community Access:** Whether the access of the management station is *Read Only* or *Read Write*. Choose Super Community to set the name used to access this Community Table.
- **Send Traps:** Whether FireProof sends traps to the management station (Enable) or not (Disable).

2. Click **Insert**. The *Community Table Insert* dialog box is displayed.
3. In the **Management Address** field, enter the IP address of the management station.
4. In the **Community String** field, enter the name of the management station.
5. In the **Community Access** field, choose the type of access.
6. In the **Send Traps** field, enable or disable the traps feature.
7. Click **Update**. The *Community Table Insert* dialog box closes.
8. In the *Community Table* window, click **Set**.

☞ **To edit an existing community management station:**

1. In the *Community Table* window, click **Edit**. The *Community Table Edit* dialog box is displayed.
2. In the **Community Access** field, choose the type of access.
3. In the *Send Traps* field, enable or disable the traps feature.
4. Click **Update**. The *Community Table Edit* dialog box closes.
5. In the *Community Table* window, click **Set**.

Setting Physical Port SNMP Restrictions

SNMP provides its own inherent security mechanism through the use of the Community table. Although, SNMP community tables provide security, extra provisions may be necessary, especially given FireProof's role in providing overall network security.

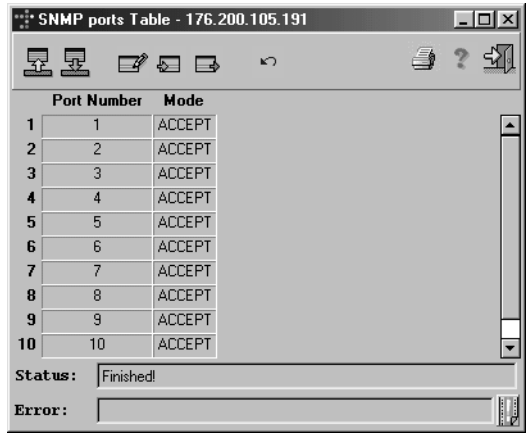
FireProof provides additional security by allowing you to restrict which physical ports accept SNMP messages. By restricting SNMP access to specific ports, you can limit access to FireProof management to those areas on the network where authorized users are likely to reside.

You use the *SNMP Port Table* window to define SNMP restrictions.

☞ **To access the SNMP Port Table window:**

- From the **Services** menu, choose **SNMP Port**.

The *SNMP Port Table* window is displayed.



The *SNMP Port Table* window contains the following fields:

- **Port Number** - The number of the physical port. This field is read only.
- **Mode** - The access mode of the port.
  - *Forward* - The SNMP message is forwarded to the device.
  - *Discard* - The SNMP message is not forwarded to the device.

☞ **To configure SNMP port restrictions:**

1. In the *SNMP Port Table* window, select the port you require to configure.
2. Select the mode.
3. Click **Set**. Your changes are made.

Configuring Bridge Settings

Once a VLAN is defined, bridging is performed within the VLAN. For example, if a DECnet VLAN is defined on ports 1 and 2, DECnet frames into port 1 are bridged to port 2 and DECnet frames into port 2 are bridged to port 1.

This section contains the following information:

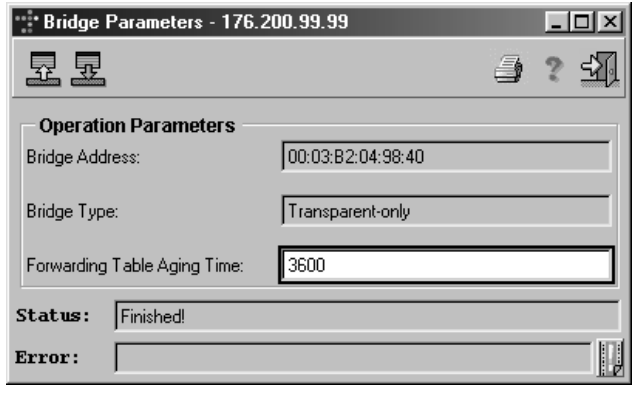
- **Bridge Operating Parameters**, below.
- **Bridge Forwarding Nodes**, page 3-76.

Bridge Operating Parameters

You use the *Bridge Parameters* window to set bridge operating parameters.

☞ **To access the Bridge Parameters window:**

- From the **Bridge** menu, choose **Operating Parameters**. The *Bridge Parameters* window is displayed.



The *Bridge Parameters* window includes the following fields:

- **Bridge Address** - The MAC Address used by the device.
- **Bridge Type** - Types of bridging the device can perform.

- **Forwarding Table Aging Time** - How many seconds learned entries remain in the Forwarding Table. The counter is reset each time the entry is used. After this time, entries are deleted from the table. Minimum: ten seconds.

☞ **To configure bridge operating parameters:**

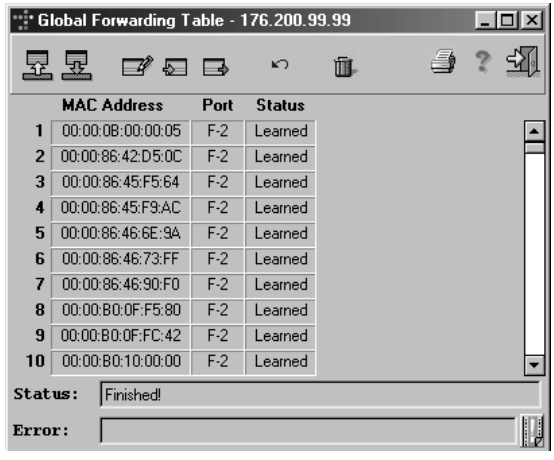
1. In the *Bridge Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

Bridge Forwarding Nodes

You use the *Global Forwarding Table* window to monitor, add and edit bridge forwarding nodes.

☞ **To access the Global Forwarding Table window:**

- From the **Bridge** menu, choose **Global Forwarding Table**. The *Global Forwarding Table* window is displayed.



The *Global Forwarding Table* window includes the following fields:

- **MAC Address** - The node's MAC address.
- **Port** - Port through which the node has been learned, that is, the port through which frames are received from this entry.

- **Status** - Describes how the node entry was added to the list, and indicates status:
  - *Learned* - The entry was automatically learned.
  - *Self* - The entry is a FireProof port.
  - *Mgmt* - The entry is a static node manually entered using the Edit button.
  - *Other* - Node status cannot be described by one of the above.

☞ **To add a new bridge forwarding node:**

1. In the *Global Forwarding Table* window, click **Insert**. The *Global Forwarding Table Insert* dialog box is displayed.
2. Adjust the appropriate values.
3. Click **Update**. The *Global Forwarding Table Insert* dialog box closes.
4. In the *Global Forwarding Table* window, click **Set**. Your changes are made.

☞ **To edit an existing bridge forwarding node:**

1. In the *Global Forwarding Table* window, select a node.
2. Click **Edit**. The *Global Forwarding Table Edit* dialog box is displayed.
3. Adjust the appropriate values.
4. Click **Update**. The *Global Forwarding Table Edit* dialog box is displayed.
5. In the *Global Forwarding Table* window, click **Set**. Your changes are made.

Configuring Services

You can configure a number of parameters that determine how FireProof performs service functions.

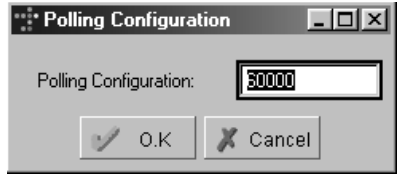
This section includes the following information:

- **Configuring Polling**, below.
- **Changing Community Names**, page 3-79.
- **Syslog Reporting**, page 3-79.
- **Event Log**, page 3-80.
- **Getting Device Information**, page 3-81.
- **Viewing Interface Parameters**, page 3-82.
- **Resetting the Device**, page 3-83.
- **Setting Device Global Parameters**, page 3-84.
- **Device Tuning**, page 3-86.
- **Configuring One Trap**, page 3-88.
- **Configuring Via File**, page 3-89.

Configuring Polling

☞ **To configure the polling of FireProof:**

1. From the **Services** menu, choose **Polling Configuration**. The *Polling Configuration* dialog box is displayed.



2. Set how often the device is polled (in seconds).
3. Click **OK**.

Changing Community Names

☞ **To change a device's community name:**

1. From the **Services** menu, choose **Community Change**. The *Community Change* dialog box is displayed.

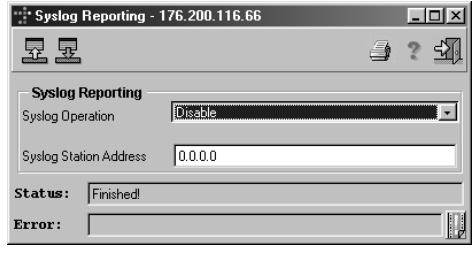
2. Type in the new community name.
3. Click **OK**.

Syslog Reporting

FireProof can issue syslog messages when a device running the syslog service (syslogd) is present.

☞ **To enable syslog messages:**

1. From the **Device** menu, choose **Syslog Reporting**. The *Syslog Reporting* window is displayed.



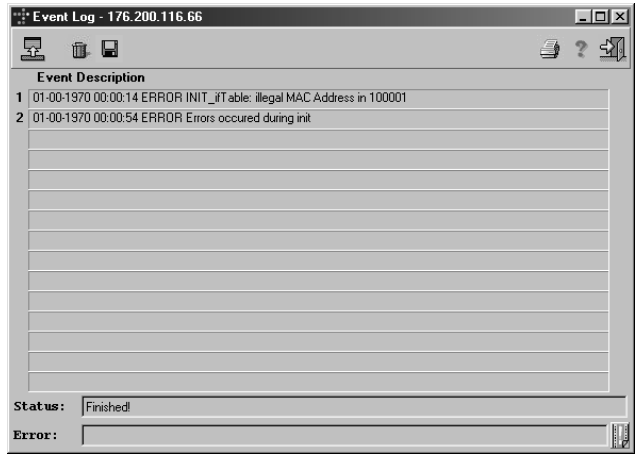
2. Set the **Syslog Operation** to *Enable*.
3. Enter the IP address of the device running the syslog service (syslogd) in Syslogd Station Address.
4. Click **Set**. Syslog reporting is enabled.

Event Log

You can view a log of the events on the device.

☞ **To view the event log:**

- From the **Services** menu, choose **Event Log**. The *Event Log* window is displayed, as shown below.


Event Log - 176.200.116.66
Event Description
1 01-00-1970 00:00:14 ERROR INIT_ifTable: illegal MAC Address in 100001
2 01-00-1970 00:00:54 ERROR Errors occured during init
Status: Finished!
Error:

☞ **To refresh the event log:**

- From the *Event Log* window, click **Refresh**.

☞ **To clear the event log:**

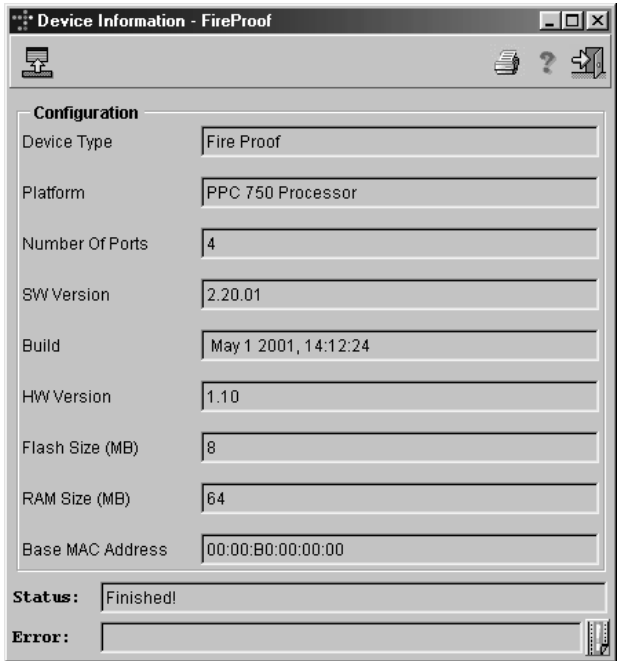
- From the *Event Log* window, click **Delete All**.

Getting Device Information

You use the *Device Information* window to view information regarding the device specifications.

☞ **To access the Device Information window:**

- From the **Device** menu, choose **Device Information**. The *Device Information* window is displayed, as shown below.



The *Device Information* window contains the following fields:

- **Device Type**: The type of device.
- **Platform**: The device platform.
- **Number of Ports**: The number of ports.
- **SW Version**: The software version.
- **Build Number**: The build number of the software.

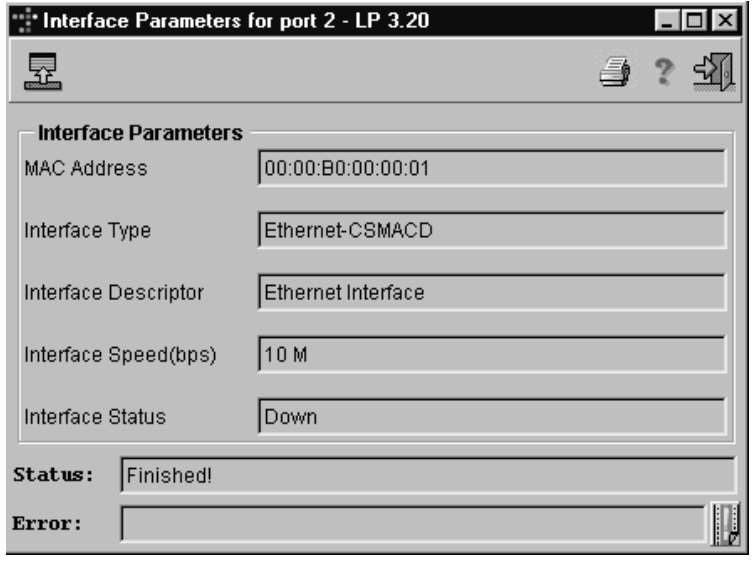
- **HW Version**: The hardware version.
- **Flash Size (MB)**: The size of the flash (permanent) memory, in megabytes.
- **RAM Size (MB)**: The amount of RAM, in megabytes.
- **Base MAC Address**: The MAC address of the first port on the device.

Viewing Interface Parameters

From time to time you may wish to view the parameters of each individual interface. You do so by accessing the Interface Parameters for Port window

☞ **To view the Interface Parameters**:

1. In the **Zoom View**, select a specific port.
2. From the **Device** menu select **Interface Parameters**. The *Interface Parameters for Port* window is displayed for the selected port. Alternatively right-click the selected port and select **Interface Parameters**.



The *Interface Parameters for Port* window contains the following fields:

- **MAC Address**: The Mac Address of the port. This corresponds to the selected port so that the MAC address of port F1 will end in :c0 and F2 will end in :c1 and so on.
- **Interface Type**: The type of interface selected, for example, Ethernet-CSMACD.
- **Interface Descriptor**: The Description of the selected interface, for example, Ethernet Interface.
- **Interface Speed (bps)**: The speed, in bits per second, of the selected port. The speed is automatically sensed but may be manually forced using the drv set speed command in the CLI. Refer to Appendix C for more information.
- **Status**: The status of the selected interface, either Up or Down.

Resetting the Device

You may wish to reset the device at any given time so as to revert to the last saved configuration.

☞ **To reset the device:**

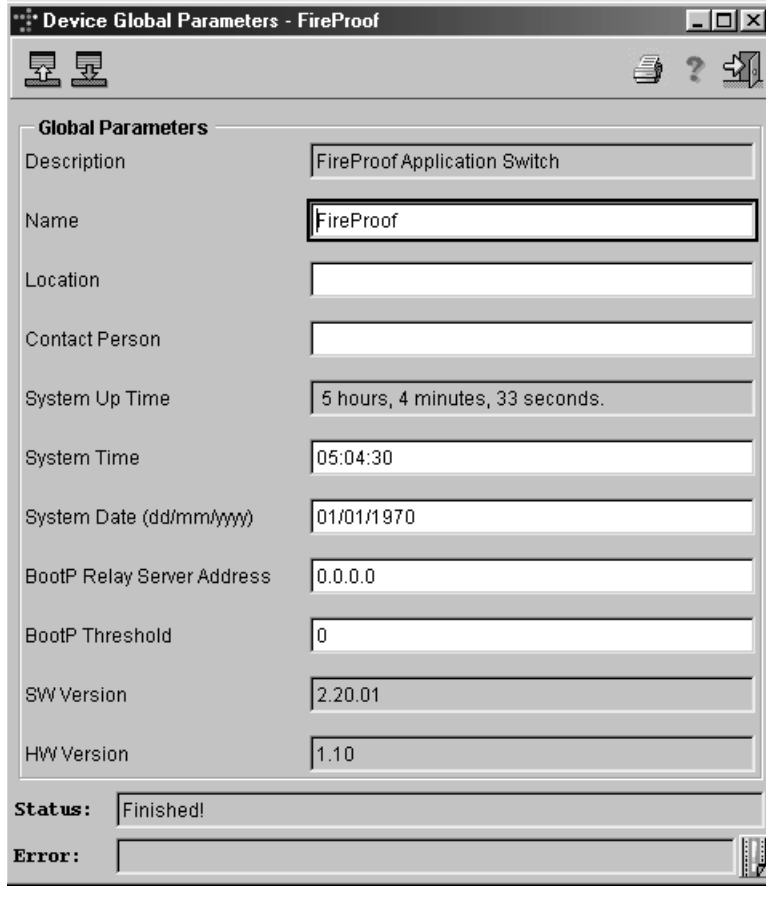
1. From the **Device** menu select **Reset Element**. The Reset for Device dialog box is displayed.
2. Click **OK**. The device is reset.

Setting Device Global Parameters

You can set various administrative parameters for the FireProof device.

☞ **To set the global parameters:**

- From the **Device** menu, choose **Global Parameters**. The *Device Global Parameters* window is displayed.



You can use the *Device Global Parameters* window, which displays the following fields:

- **Description** - General description of the device.
- **Name** - User-assigned name of the device which appears in the windows describing the device.
- **Location** - Geographic location of the device.
- **Contact Person** - The person or people responsible for the device.
- **System Up Time** - Time elapsed since the last reset.
- **System Time** - Current user-defined device time.
  System Date - Current user-defined device date. Fireproof is year 2000 compliant, supporting dates of the form dd/mm/yyyy.
- **BootP Relay Server Address** - The IP address of the BootP server. FireProof forwards BootP requests to the BootP server and acts as a bootp relay.
- **BootP Threshold** - How many seconds the device will wait before relaying requests to the BootP server. This delay allows local BootP Servers to answer first.
- **Software Version** - Version of software that is currently.

☞ **To set the global parameters:**

1. From the **Device** menu, choose **Global Parameters**. The *Global Parameters* window is displayed.
2. Adjust the appropriate values.
3. Click **Set**. Your changes are recorded.

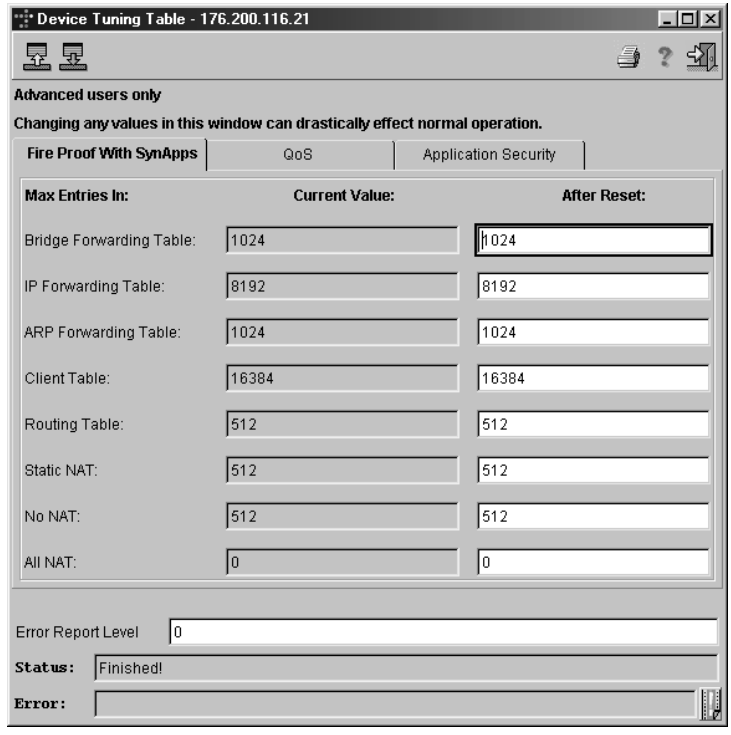
Device Tuning

IMPORTANT: It is strongly advised that Device Tuning only be carried out after consulting with Radware's technical support.

Use the **FireProof with SynApps**, **QoS** and **Application Security** tabs in the *Device Tuning* window to determine the maximum amount of entries allowed in the various tables listed. As well as define the security parameters for your previously defined security policy. The changes are only implemented after reset.
Note: The tabs described above only exist in a device with SynApps.

☞ **To access the Device Tuning window:**

- From the **Services** menu, choose **Device Tuning**.
  The *Device Tuning Table* window is displayed, as shown below.



The *Device Tuning Table* window contains three tabs with the following information:

FireProof With SynApps Tab

- **Bridge Forwarding Table:** The limit on number of local station addresses.
- **IP Forwarding Table:** Displays the limit on the number of IP destinations. The values are concurrent.
  Note: Using 64M DRAM, FireProof 3.20 supports up to 128,000 entries in the IP Forwarding Table. Using 128M DRAM, FireProof 3.20 supports up to 250,000 entries in the IP Forwarding Table.
- **ARP Forwarding Table:** The limit on the number of entries in the ARP table.
- **Client Table:** The limit on the number of entries in the Client Table. The values are concurrent.
- **Routing Table:** The limit on the number of entries in the Routing Table.
- **Static Table:** The limit on the number of entries in the URL Table.
- **No NAT Table:** The limit on the number of entries in the SSL Table.

QoS Tab

- **Policy Table:** Displays the number of policy entries in the table.
- **Network Table:** Displays the number of ranges entered in the table.
- **Filter Table:** Displays the number of filter entries in the table.
- **Advanced Table:** Displays the number of grouped filter entries in the table.
- **Group Table:** Displays the number of grouped filter entries in the table.

Application Security Tab

- **Targets Table Size:** Represents the size of the table for destination entries.
- **Source & Target Table Size:** Represents the size of the table for both source and destination entries, which are counted as one.

- **TCP Table Size:** Represents the size of the table for TCP entries.
- **TCP Table Free-Up Frequency:** Refers to the lifetime of a TCP entry in milliseconds.
- **Security Tracking Free-Up Frequency:** Refers to the lifetime of both the source and/or destination entries.
- **Alerts Table Polling Time (ms):** The lifetime of statistic entries in milliseconds.

☞ **To tune the device:**

1. In the *Device Tuning* window, edit the number of entries for each field.
2. Click **Set**. Your entries are recorded.

Configuring One Trap

The One Trap feature determines how traps are issued when a firewall fails. When the feature is enabled, a single trap is generated to report a firewall failure. When disabled, traps are issued continuously until the firewall is brought on line again.

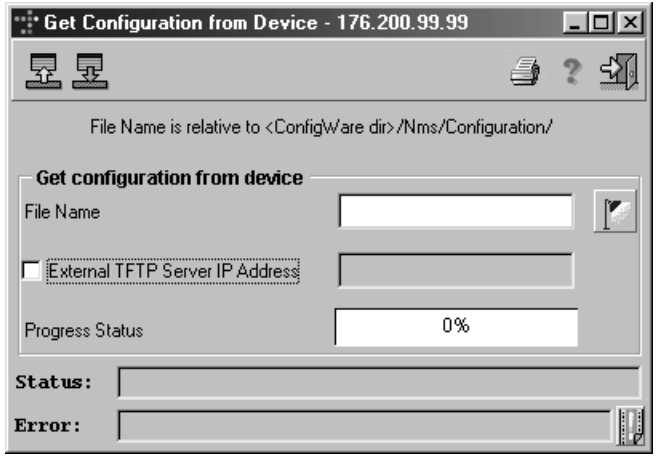
Configuring Via File

You can configure the FireProof hardware by downloading the configuration file. The process of configuring the device from your management station includes the following steps:
Note: You must have "super" privileges to perform this action.

1. Download the **BER** file from the device.
2. Convert the **BER** file to an **ASCII** file.
3. Make changes to the configuration.
4. Convert the **ASCII** file to a **BER** file.
5. Upload the **BER** file to the device.

☞ **To download the configuration file:**

1. From the **Configuration** menu, choose **Receive From Device**. The *Get Configuration From Device* window is displayed.



2. In the **File Name** field, enter the name you want to assign to the file. Alternatively, click **Browse** to search the directory tree for the file. The file will be saved in the directory <Configware_Install_Dir>/NMS/Configuration.

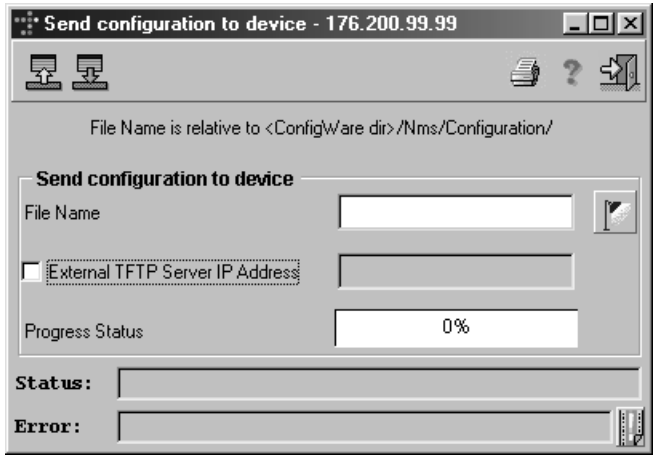
3. Optionally check the **External TFTP Server IP Address** checkbox. If do not want to use the default TFTP server provided with the device, check the **External TFTP Server IP Address** checkbox, and enter the IP address of the machine running the server. If you use an external TFTP server, the configuration file is saved in the location configured in that server. To use the default TFTP server, do not check the box.
4. Click **Set**. The status of the download is displayed in the **Progress Status** field.

☞ **To edit the configuration file:**

1. From the **Configuration** menu, choose **Edit File**. The *Edit Config File* window is displayed.
2. In the **Ber Formatted File** field, enter the name of the file you want to edit. Alternatively, click **Browse** to search the directory tree for the file.
3. In the **ASCII Formatted File** field, enter the name of the ASCII file you want to create.
4. In the **Direction** field, choose **BER to ASCII** to convert the file.
5. Click **Set**. The status of the conversion is displayed in the **Progress Status** field.
6. Click **Edit ASCII File** to edit the configuration file. The *Edit File Edit Config File* window is displayed.
7. Make your changes to the file, save and close the *Edit File Edit Config File* window.
8. In the **Direction** field, choose **ASCII to BER** to convert the file back.
9. Click **Set**. You can now return the file to the device or send it to another device.

☞ **To send the configuration file to a device:**

1. From the **Configuration** menu, choose **Send To Device**. The *Send Configuration To Device* window is displayed.



2. In the **File Name** field, enter the name you want to send. Alternatively, click **Browse** to search the directory tree for the file. Configware will look for the file in the directory <Configware_Install_Dir>/NMS/Configuration.
3. Optionally check the **External TFTP Server IP Address** checkbox. If do not want to use the default TFTP server provided with the device, check the **External TFTP Server IP Address** checkbox, and enter the IP address of the machine running the server. To use the default TFTP server, do not select the checkbox.
4. Click **Set**. The status of the upload is displayed in the **Progress Status** field.

Setting Up Application Security

The Application Security feature enables you to set up another line of defense within your network. Once configured, the FireProof is able to detect and prevent attacks to your network in real-time.
Note: This feature is only available with a SynApps license.

☞ **To start the protection:**

1. From the **Security** menu, select **Application Security**, and then choose **Global Parameters**. The *Application Security Global Parameters* dialog box is displayed.

The following fields are displayed in this dialog box:

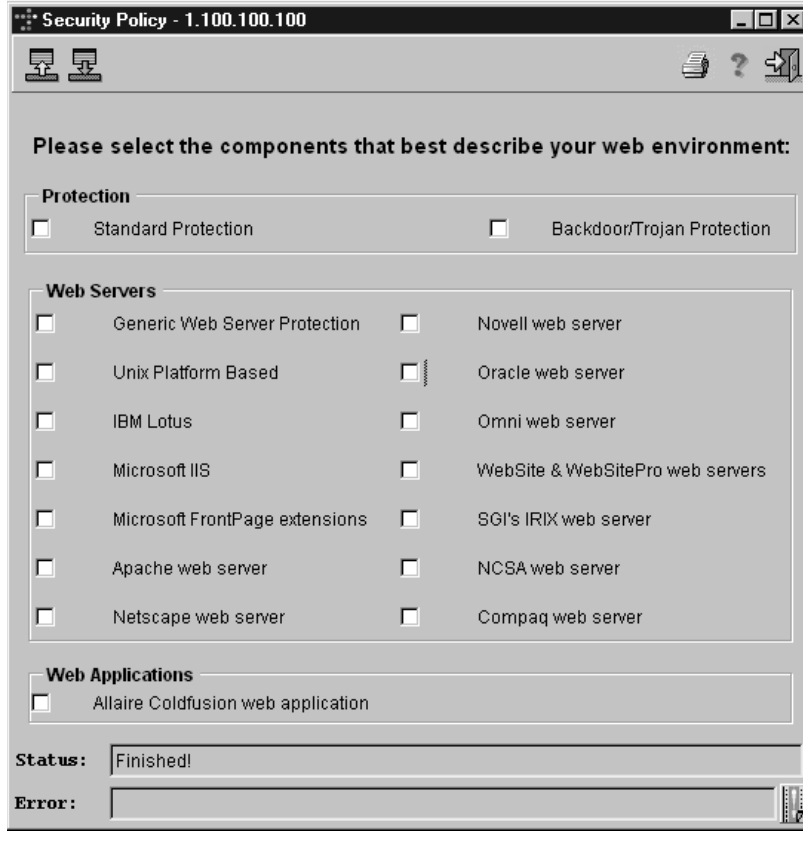
- **Start Protection:** Select **Enabled** to enable application security.
- **Alerts Table Size:** Define the size of the Alerts Table.
- **Traps Sending:** Select **Enabled** to enable traps to be sent. When enabling **Trap Sending**, traps are sent to the management station, as configured in *Setting Up Security*, on page 3-71.

2. Click **Set**.
3. Click **Close Screen** to exit the dialog box.

You can define the security policy for your network using the *Security Policy* window.

☞ **To define the security policy:**

1. From the **Security** menu, select **Application Security**, and then choose **Security Policy**. The *Security Policy* window is displayed.



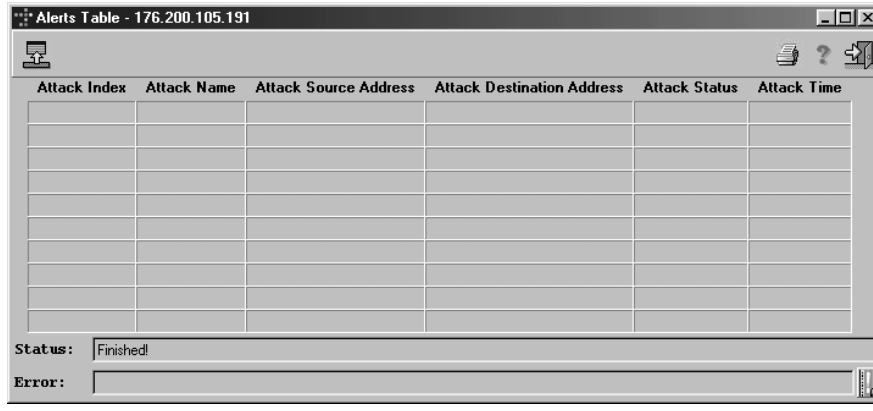
The checkboxes provided in this window enable you to define the security policy that best suits your network.

2. Select the checkboxes you require.
3. Click **Set** to save your selection.

You can view an *Alerts Table* window, which contains information about security events detected by the Application Security module, such as when an attack started and its status.

☞ **To view the Alerts Table window:**

- From the **Security** menu, select **Application Security**, and then choose **Alerts Table**. The *Alerts Table* window is displayed.



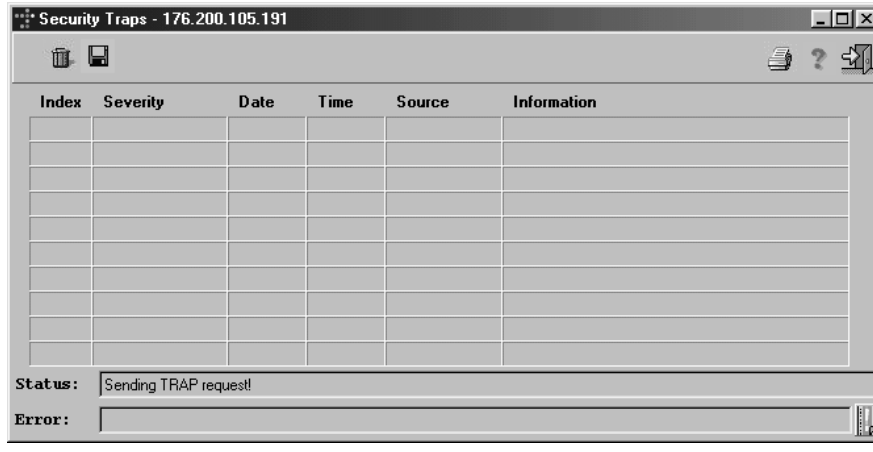
The following information is displayed in the *Alerts Table* window:

- **Attack Index:** An increasing index of attack records in the *Alerts Table* window.
- **Attack Name:** The type of attack name.
- **Attack Source Address:** The source IP address of the attack.
- **Attack Destination Address:** The destination IP address of the attack.
- **Attack Status:** The status of the attack.
- **Attack Time:** The time at which the attack was detected.

You can also view a *Security Traps* window, which displays security traps information.

☞ **To view the Security Traps window:**

- From the **Security** menu, select **Application Security**, and then choose **Security Traps**. The *Security Traps* window is displayed.



The following information is displayed in the *Security Traps* window:

- **Index:** An increasing index of trap records in the *Security Traps Table* window.
- **Severity:** The severity of the trap.
- **Date:** The date the trap was set.
- **Time:** The time the trap was set.
- **Source:** The source IP address of the attack.
- **Information:** A description of the of the security trap.

Configuring Bandwidth Management (BWM)

You can configure the bandwidth for your device according to your needs by using Radware's Quality of Service (QoS) tool. This enables you to classify user traffic according to a wide array of criteria, then traffic is handled according to the matching policy. At the same time, a BWM solution can track the actual bandwidth used by each application and set limits as to how much bandwidth is used. Refer to *Appendix C* for details about how to configure rules via the ASCII terminal.
Note: Full functionality of this feature is only available with a SynApps license.

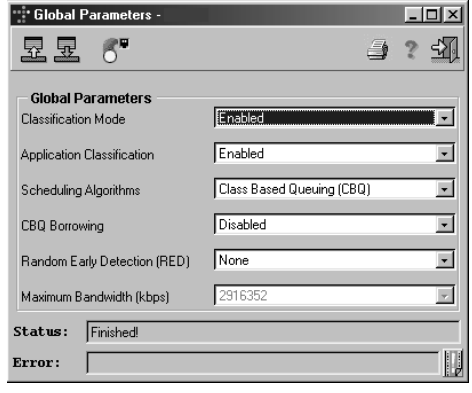
This section contains the following information:

- **Setting Global Parameters**, below.
- **Viewing Active Policies**, page 3-99.
- **Modifying Policies**, page 3-100.
- **Modifying Networks**, page 3-104.
- **Modifying Services**, page 3-105.
- **Viewing and Modifying Differentiated Services**, page 3-110.

Setting Global Parameters

Setting the global parameters specifies the BWM functionality of the FireProof.

☞ **To access the Global Parameters window:**
- From the **QoS** menu, select **Global Parameters**. The *Global Parameters* window is displayed, as shown below.



The *Global Parameters* window displays the following fields:

- **Classification Mode:** From the dropdown list, select *Policies*, *Diffserv* or *Disable* to specify which classification is to be used.
  - *Disable* - No classification. The BWM management feature is disabled.
  - *Policies* - The device classifies each packet by various policies configured by the user.The policies can use various parameters, such as source and destination IP addresses, application, and so on. If required, the DSCP field in the packets can be marked according to the policy the packet matches.
  - *Diffserv* (BWM 2.00 only) - The device classifies packets only by the DSCP (Differentiated Services Code Point) value.
- **Application Classification:** From the dropdown list, select *Enable* or *Disable* to specify whether classification is performed per session *(Enable)*, or per packet *(Disable)*.
- **Scheduling Algorithms** (SynApps only)**:** From the dropdown list, select *Weighted Round Robin (WRR)* or *Class Based Queuing (CBQ)* to specify how the queue of packets will function.
  Note: If the mode is changed you must reset the device.
- **CBQ Borrowing** (SynApps only)**:** Select *Enable* or *Disable* to specify whether bandwidth can be borrowed from other policies. This is only valid if **CBQ** is used as the scheduling algorithm.
- **Random Early Detection (RED)** (SynApps only)**:** From the dropdown list, select *None*, *Global* or *Weighted* to specify the queue management.

Note: After changing the **Scheduling Algorithms** or **Classification Mode** parameters, it is necessary to reboot the device.

☞ **To set the global parameters:**

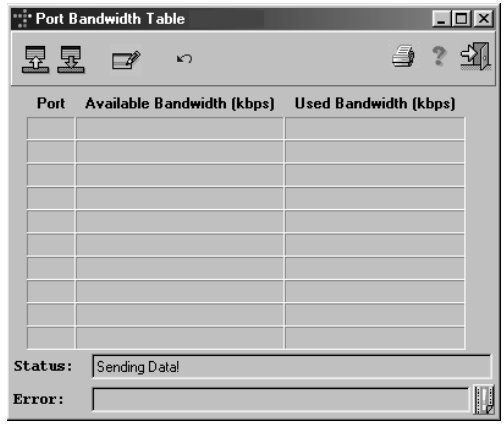
1. In the *Global Parameters* window, adjust the appropriate values.
2. Click **Set**. Your changes are recorded.

☞ **To refresh the global parameters:**

- In the *Global Parameters* window, click **Refresh** to update the window.

☞ **To edit port bandwidth:**

1. In the *Global Parameters* window, click **Setting Bandwidth for Specific Port**. The *Port Bandwidth Table* window is displayed.



The following fields are displayed:

- **Port:** The port number.
- **Available Bandwidth (kbps):** The bandwidth available to the specific port.
- **Used Bandwidth (kbps):** The amount of bandwidth used on the specific port.

2. Select the port for which you require to edit the bandwidth.
3. Click **Edit**. The *Edit Port Bandwidth Parameters* dialog box is displayed.
4. Edit the information in the appropriate fields, according to your requirements.
5. Click **Update**. The *Edit Port Bandwidth Parameters* dialog box closes.
6. In the *Port Bandwidth Table* window, click **Set**. Your changes are recorded.
7. In the *Port Bandwidth Table* window, click **Close Screen**. The *Global Parameters* window is displayed.

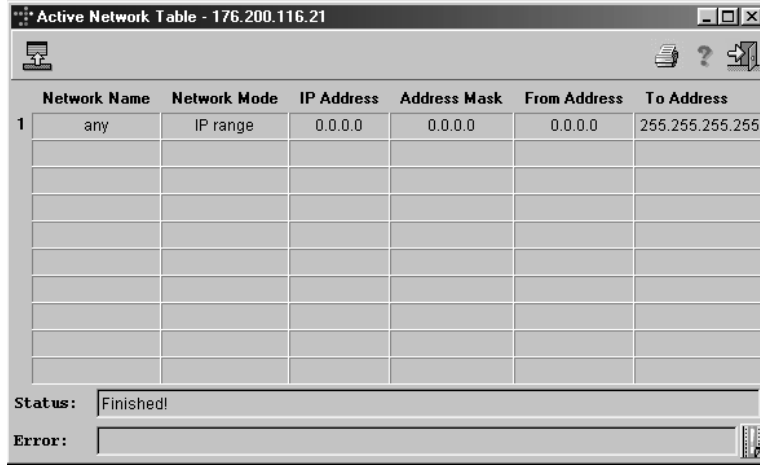
Viewing Active Policies

Configware enables you to view active policies, as well as configure new ones. The Bandwidth Management solution uses a policy database which is made up of two sections. The first is the temporary or inactive portion. These policies can be altered and configured without affecting the current operation of the device. As these policies are adjusted, the changes are not in effect unless the inactive database is activated. The activation basically updates the active policy database, which is what the classifier uses to sort through the packets that flow through it.

You can modify these policies according to your requirements at any given time. These options are discussed in the following section.

☞ **To view active policies:**

- From the **QoS** menu, choose **View Active Policies**. A secondary menu displays **Policies**, **Networks** and **Services**, from which you can view the active tables for these functionalities. For example, the *Active Network Table* window is displayed.



☞ **To refresh an active table:**

- In the *Active Network Table* window, for example, click **Refresh**.
  The data displayed in the window is updated.
  The following statistical parameters of active policies are displayed in the *Active Policies Table* window:
  - **Matched Packets:** Displays the number of packets matched to the policy in the last second (kbps).
  - **Used Bandwidth:** Displays the amount of bandwidth used in the last second (kbps).
  - **Average Bandwidth:** Displays the average amount of bandwidth used per second (kbps) since the device was booted or since the policies were last updated.
  - **Peak Average Bandwidth:** Displays the peak average amount of bandwidth used per second (kbps) since the device was booted or since the policies were last updated.
  - **DSCP:** Displays the Diffserv policy assigned to a packet.

☞ **To activate inactive policies:**

1. From the **QoS** menu, select **Update Policies**. The *Update Confirmation* dialog box is displayed.
2. Click **OK** to implement the latest policy changes.

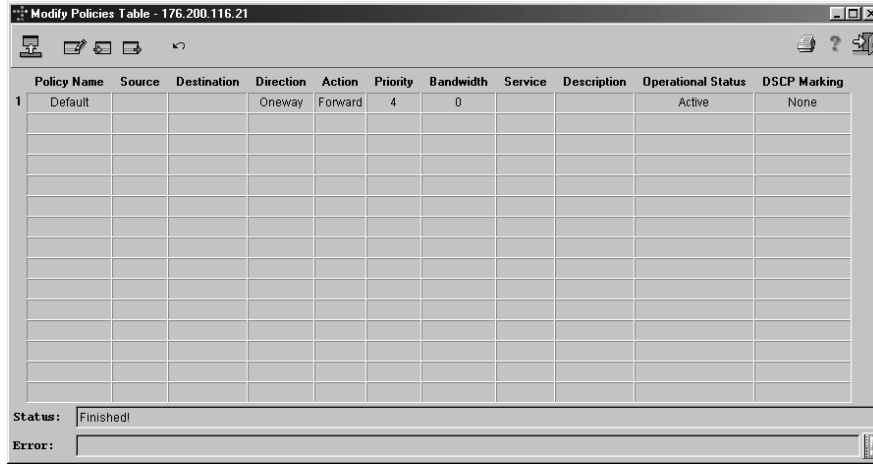
Modifying Policies

You can add, modify and delete policies in the Modify Policies Table window, according to your requirements. In addition, you can edit the default policy of the device. A default policy exists, which can be matched to any traffic that does not match a user-defined policy. You can change the action and the priority of the default policy.

☞ **To create a new policy:**

1. From the **QoS** menu, select **Modify Policies** and then choose **Policies**.

The *Modify Policies Table* window is displayed.



In the *Modify Policies Table* window, the following information is displayed:

- **Policy Name:** The user-defined name of the policy.
- **Source:** The source address of the packet being matched by the policy.
- **Destination:** The destination address of the packet being matched by the policy.
  Note: The source or destination can be an IP address or a network address. Refer to *Modifying Networks* on page 3-97.
- **Direction:** The direction to which the policy relates is either *Oneway* or *Twoway*. *Oneway* means a policy only matches packets where the source IP and port match the source, as well as the destination. *Twoway* means that if the source matches the destination and vice versa, this is also a match.
- **Action:** The action to be applied to the packet is either *Forward*, *Block*, *Block and reset*, or *Block and bi-directional reset*.
- **Priority** (SynApps only)**:** The priority attached to the packet by which it is forwarded is either Real-time or a value of 0-7, 7 being the lowest priority. *Priority* is only applicable if the action is forward.

- **Bandwidth** (SynApps only)**:** This defines the bandwidth limitation for packets matching this policy. This option is used in conjunction with CBQ, and not with WWR.
- **Service:** The type of service is either *None*, *Basic Filter*, *Advanced Filter* or *Filter Group*.
- **Description:** A description of the policy.
- **Operational Status:** From the dropdown list, select *Active* or *Inactive* to specify the operational status of the policy.
  Note: If you select inactive, when policies are updated, this policy is not used to be matched against packets.
- **DSCP Marking** (SynApps only)**:** Refers to Differentiated Services Code Point (DSCP) or Diffserv. Enables you to mark the packet with a range of bits displayed in the dropdown list.

2. Click **Insert**. The *Insert New Policy Parameters* dialog box is displayed containing the previously described fields.
3. Enter the parameters of the new policy in the fields provided.
4. Click **Update**. The *Insert New Policy Parameters* dialog box closes.
5. In the *Modify Policies Table* window, click **Set**. Your changes are made.

☞ **To edit a policy:**

1. In the *Modify Policies Table* window, select the policy you want to edit.
2. Click **Edit**. The *Edit New Policy Parameters* dialog box is displayed.
3. Adjust the values of the appropriate fields.
4. Click **Update**. The *Edit New Policy Parameters* dialog box closes.
5. In the *Modify Policies Table* window, click **Set**. Your changes are made.

☞ **To edit a the default policy:**

1. In the *Modify Policies Table* window, click **Edit Default Policy**. The *Edit Default Policy* dialog box is displayed.
2. Select the default policy and click **Edit**. An additional *Edit Default Policy* dialog box is displayed.

3. Select the parameters you require from the **Action** and **Priority** dropdown lists:
   - **Action:** Enables you to define the action of the default policy from the following:
     - *Forward*: Enables traffic to pass through the device.
     - *Block*: Prevents traffic from passing through the device.
     - *Block & reset*: Prevents traffic from passing through the device and sends a reset message to the sender.
     - *Block & bi-directional reset*: Prevents traffic from passing through the device and sends a reset message to both the sender and the recipient.
   - **Priority:** Enables you to set the priority of the policy, which can be on a scale of 0-7, or in real-time.
4. Click **Update**. The *Edit Default Policy* dialog box closes.
5. Your changes are recorded.

☞ **To delete policies:**

1. In the *Modify Policies Table* window, select the policy you require to delete.
2. Click **Delete**. The policy is highlighted in red.
3. Click **Set**. The policy is deleted.

☞ **To change the order of existing policies:**

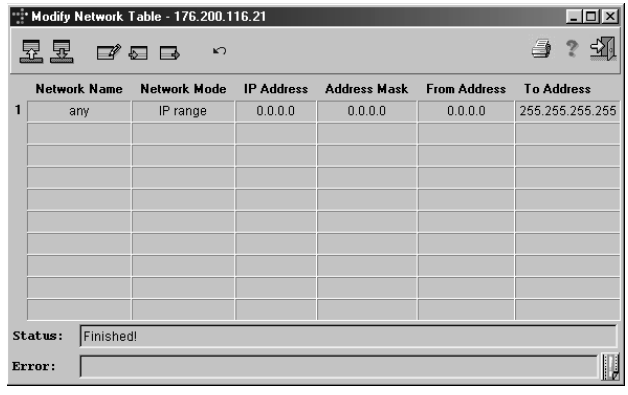
1. From the **QoS** menu, choose **Modifying Policies** and then select **Policies**. The *Modify Policies Table* window is displayed.
2. Select the policy in the table for which you require to change the order.
3. Click **Insert**. The *Modify Policies Table Insert* dialog is displayed.
4. From the **Policy Order** dropdown list, select the new order you require for the policy.
   Note: Policies can only be moved upwards in order.
5. In the *Modify Policies Table* window, click **Refresh**. The order of the policies is changed according to your requirements.

Modifying Networks

Configware enables you to view active networks, as well as configure new ones. You can define networks that will be used by the device, which are kept in the active part of the database, and you can define networks that will kept in a separate, temporary database until such time as they are required. Refer to *Viewing Active Policies* on page 3-99, for further details. You can add, modify and delete these networks according to your requirements.

☞ **To create a new network:**

1. From the **QoS** menu, select **Modify Policies** and then choose **Networks**. The *Modify Network Table* window is displayed, as shown below.



In the *Modify Network Table* window, the following information is displayed:

- **Network Name:** The user-defined network name.
- **Network Mode:** The network mode is either *IP Mask* or *IP Range*.
- **IP Address:** The IP address of the subnet.
- **Address Mask:** The mask address of the subnet.
- **From Address:** The first IP address in the range of addresses.
- **To Address:** The last IP address in the range of addresses.

Note: In order to simplify configuration, a network can consist of a combination of network subnets and ranges. For example:
Range = 176.200.100.0 - 176.200.100.255
Subnet = 172.0.0.0/255.0.0.0

2. Click **Insert**. The *Insert New Network Parameters* dialog box is displayed containing the previously described fields.
3. Enter the parameters of the new network in the fields provided.
4. Click **Update**. The *Insert New Network Parameters* dialog box closes.
5. In the *Modify Network Table* window, click **Set**. Your changes are made.

☞ **To edit a network:**

1. In the *Modify Network Table* window, select the network you require to edit.
2. Click **Edit**. The *Edit New Network Parameters* dialog box is displayed.
3. Adjust the values of the appropriate fields.
4. Click **Update**. The *Edit New Network Parameters* dialog box closes.
5. In the *Modify Network Table* window, click **Set**. Your changes are made.

☞ **To delete networks:**

1. In the *Modify Network Table* window, select the network you require to delete.
2. Click **Delete**. The network is highlighted in red.
3. Click **Set**. The network is deleted.

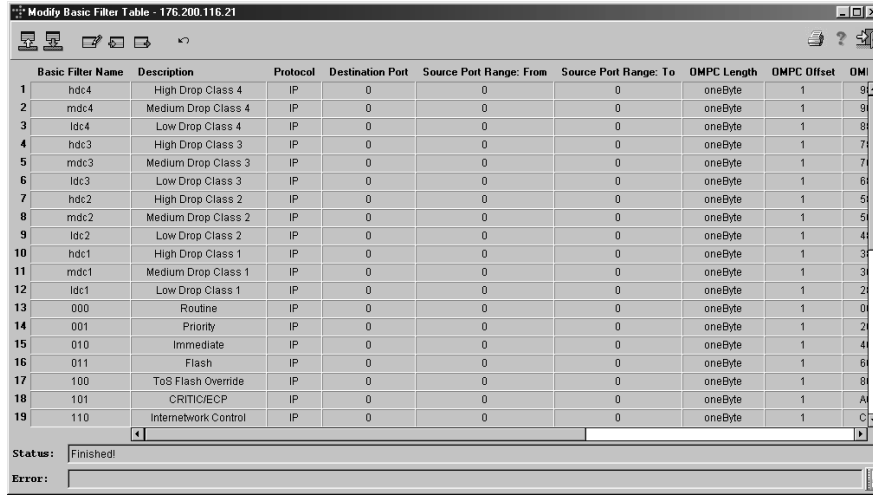
Modifying Services

Configware enables you to view active services, as well as configure new ones. You can define services that will be used by the device, which are kept in the active part of the database, and you can define services that will kept in a separate, temporary database until such time as they are required. Refer to *Viewing Active Policies* on page 3-100, for further details.
You can create basic filters and then combine them them with logical conditions to achieve more sophisticated filters, as shown in the *Modify Advanced Filters Table* window. Use filter groups (for logical OR between filters) and advanced filters (for logical AND between filters).

You can also add, modify and delete the filters that build the services according to your requirements.

☞ **To create a new basic filter:**

1. From the **QoS** menu, select **Modify Policies** and then choose **Services**. From the secondary menu, select **Basic Filters**.
   The *Modify Basic Filter Table* window is displayed, as shown below.



	Basic Filter Name	Description	Protocol	Destination Port	Source Port Range: From	Source Port Range: To	OMPC Length	OMPC Offset	OM
1	hdc4	High Drop Class 4	IP	0	0	0	oneByte	1	9
2	mdc4	Medium Drop Class 4	IP	0	0	0	oneByte	1	9
3	ldc4	Low Drop Class 4	IP	0	0	0	oneByte	1	8
4	hdc3	High Drop Class 3	IP	0	0	0	oneByte	1	7
5	mdc3	Medium Drop Class 3	IP	0	0	0	oneByte	1	7
6	ldc3	Low Drop Class 3	IP	0	0	0	oneByte	1	6
7	hdc2	High Drop Class 2	IP	0	0	0	oneByte	1	5
8	mdc2	Medium Drop Class 2	IP	0	0	0	oneByte	1	5
9	ldc2	Low Drop Class 2	IP	0	0	0	oneByte	1	4
10	hdc1	High Drop Class 1	IP	0	0	0	oneByte	1	3
11	mdc1	Medium Drop Class 1	IP	0	0	0	oneByte	1	3
12	ldc1	Low Drop Class 1	IP	0	0	0	oneByte	1	2
13	000	Routine	IP	0	0	0	oneByte	1	0
14	001	Priority	IP	0	0	0	oneByte	1	2
15	010	Immediate	IP	0	0	0	oneByte	1	4
16	011	Flash	IP	0	0	0	oneByte	1	6
17	100	ToS Flash Override	IP	0	0	0	oneByte	1	8
18	101	CRITIC/ECP	IP	0	0	0	oneByte	1	A
19	110	Internetwork Control	IP	0	0	0	oneByte	1	C

In the *Modify Basic Filter Table* window, the following information is displayed:

- **Basic Filter Name:** The user-defined name of the filter.
- **Description:** A description of the filter.
- **Protocol:** The protocol used, which is either *IP*, *UDP* or *TCP*.
- **Destination Port:** The destination port for UDP and TCP traffic only.
- **Source Port Range: From:** The first port in the range of source ports for UDP and TCP traffic only.
- **Source Port Range: To:** The last port in the range of source ports for UDP and TCP traffic only. This feature enables the user to configure filters for various bit patterns in packets.
- **OMPC Length:** The length of the OMPC (Offset Mask Pattern Condition) data can be *N/A*, *oneByte*, *twoBytes*, *threeBytes* or *fourBytes*.

- **OMPC Offset:** Refers to the offset in the packet where the OMPC is checked.
- **OMPC Pattern:** Refers to the OMPC pattern searched for in the packet.
- **OMPC Mask:** The mask for the OMPC data.
- **OMPC Condition:** The OMPC condition can be either *N/A*, *equal*, *notEqual*, *greaterThan* or *lessThan*.
- **Content Offset:** Refers to the offset in the packet where the content is checked.
- **Content:** Refers to the search for the content in the packet.
- **Content Type:** Refers to the type of content searched for in the packet. It can be *N/A*, *URL* or *text*.

Note: The parameters in the *Active Basic Filter Table* and the *Modify Basic Filter Table* windows are the same.

2. Click **Insert**. The *Insert New Basic Filter Parameters* dialog box is displayed containing the previously described fields.
3. Enter the parameters of the new basic filter in the fields provided.
4. Click **Update**. The *Insert New Basic Filter Parameters* dialog box closes.
5. In the *Modify Basic Filter Table* window, click **Set**. Your changes are made.

☞ **To edit a basic filter:**

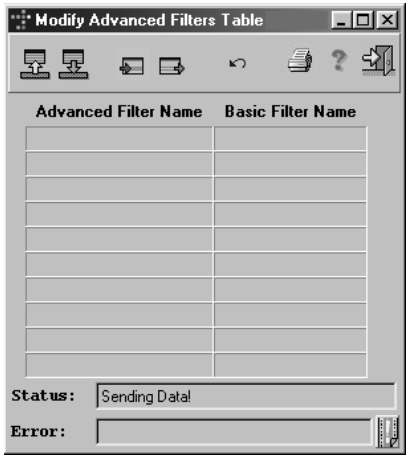
1. In the *Modify Basic Filter Table* window, select the basic filter you require to edit.
2. Click **Edit**. The *Edit Basic Filter Parameters* dialog box is displayed.
3. Adjust the values of the appropriate fields.
4. Click **Update**. The *Edit Basic Filter Parameters* dialog box closes.
5. In the *Modify Basic Filter Table* window, click **Set**. Your changes are made.

☞ **To delete basic filters:**

1. In the *Modify Basic Filter Table* window, select the basic filter you require to delete.
2. Click **Delete**. The basic filter is highlighted in red.
3. Click **Set**. The basic filter is deleted.

☞ **To create a new advanced filter:**

1. From the **QoS** menu, select **Modify Policies** and then choose **Services**. From the secondary menu, select **Advanced Filters**. The *Modify Advanced Filters Table* window is displayed, as shown below.



In the *Modify Advanced Filters Table* window, the following information is displayed:

- **Advanced Filter Name:** The user-defined name of the advanced filter. Advanced filters are a logical AND between other filters.
- **Basic Filter Name:** The user-defined name of the basic filter.

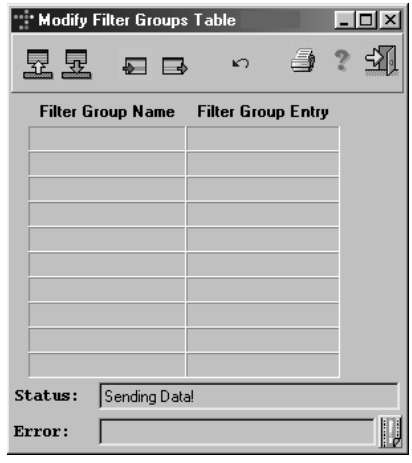
2. Click **Insert**. The *Insert New Advanced Filters Parameters* dialog box is displayed.
3. In the **Enter advanced filter name** field, enter the name you require, or select it from the dropdown list.
4. Using the right and left arrow buttons, move the **Optional Basic Filters** you require to the **Selected Basic Filters** field.
5. Click **Update**. The *Insert New Advanced Filters Parameters* dialog box closes.
6. In the *Modify Advanced Filters Table* window, click **Set**. Your changes are made.

☞ **To delete advanced filters:**

1. In the *Modify Advanced Filters Table* window, select the advanced filter you require to delete.
2. Click **Delete**. The advanced filter is highlighted in red.
3. Click **Set**. The advanced filter is deleted.

☞ **To create new filter groups:**

1. From the **QoS** menu, select **Modify Policies** and then choose **Services**. From the secondary menu, select **Filter Groups**. The *Modify Filter Groups Table* window is displayed, as shown below.



In the *Modify Filter Groups Table* window, the following information is displayed:

- **Filter Group Name:** The user-defined name of the filter group.
- **Filter Group Entry:** The name of the entry assigned to a specific filter group. Filter group is a logical OR between other filters.

2. Click **Insert**. The *Insert New Filter Groups Parameters* dialog box is displayed.
3. In the **Enter filter group name** field, enter the name you require, or select it from the dropdown list.

4. Using the right and left arrow buttons, move the **Optional Filters** you require to the **Selected Filters** field.
5. Click **Update**. The *Insert New Filter Groups Parameters* dialog box closes.
6. In the *Modify Filter Groups Table* window, click **Set**. Your changes are made.

☞ **To delete filter groups:**

1. In the *Modify Filter Groups Table* window, select the filter group you require to delete.
2. Click **Delete**. The filter group is highlighted in red.
3. Click **Set**. The filter group is deleted.

Viewing and Modifying Differentiated Services

Differentiated Services (Diffserv) provides differentiated classes of service to Internet traffic, supporting various types of applications, as well as specific business requirements. The problem in providing different classes of service to different types of traffic is that each network device must examine various parameters in each packet, in order to identify the class of service it should receive. Diffserv uses a small bit-pattern in each packet to identify the type of service it should receive.

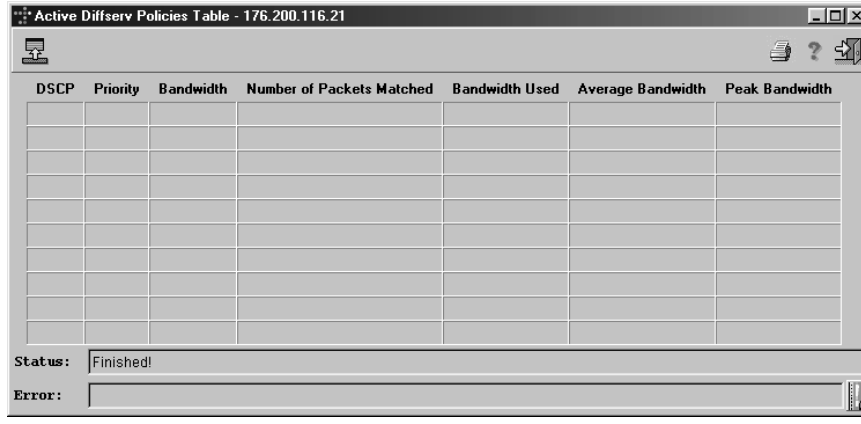
Radware support for Diffserv can act as either a classifier, marking each packet as it enters the network and providing the appropriate type of service, or as a network node, which reads the Type of Service (ToS) bits in order to provide the appropriate type of service as indicated by the bits.

In addition, you can define Diffserv polices that will be used by the device, which are kept in the active part of the policy database, and you can define polices that will kept in a separate, temporary database until such time as they are required. Refer to *Viewing Active Policies* on page 3-100, for further details.

The following procedures enable you to view, modify and set Diffserv policies.

☞ **To view the Active Diffserv Policies Table:**

- From the **QoS** menu, select **Diffserv** and then choose **View Active Diffserv Policies**. The *Active Diffserv Policies Table* window is displayed, as shown below.

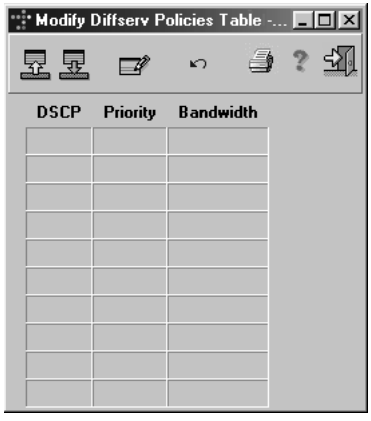


In the *Active Diffserv Policies Table* window, the following information is displayed:

- **DSCP:** Refers to Differentiated Services Code Point, which is the Diffserv value.
- **Priority:** The priority for packets carrying the Diffserv value, by which it is forwarded is either Real time or a value of 0-7, 7 being the lowest priority. The default is 4.
- **Bandwidth:** Displays the amount of bandwidth dedicated to policies carrying the Diffserv value.
- **Number of Packets Matched:** Displays the actual number of packets matched to the policy.
- **Bandwidth Used:** Displays the amount of bandwidth used in the last second (kbps).
- **Average Bandwidth:** Displays the average amount of bandwidth used per second (kbps) since the device was booted or since the policies were last updated.
- **Peak Bandwidth:** Displays the peak average amount of bandwidth used per second (kbps) since the device was booted or since the policies were last updated.

☞ **To modify a Diffserv policy:**

1. From the **QoS** menu, select **Diffserv** and then choose **Modify Diffserv Policies**. The *Modify Diffserv Policies Table* window is displayed, as shown below.



Note: A definition of the field in this window are provided in the previous procedure.

2. Select the policy you require to edit and click **Edit**. The *Modify Diffserv Policies Table Edit* dialog box is displayed.
3. Adjust the appropriate values.
4. Click **Update**. The dialog box closes.
5. In the *Modify Diffserv Policies Table* window click, **Set**. Your changes are recorded.

☞ **To set the default Diffserv policies:**

1. From the **QoS** menu, select **Diffserv** and then choose **Set Diffserv Policies**. The *Set Diffserv Policies* dialog box is displayed.
2. Click **OK** to set default Diffserv values.

☞ **To update policy changes:**

1. From the **QoS** menu, select **Update Policies**. The *Update Confirmation* dialog box is displayed.
2. Click **OK** to implement the latest policy changes.

Updating Software

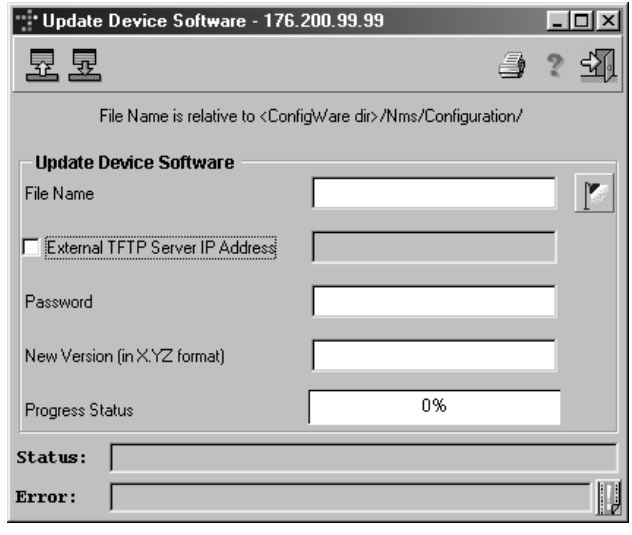
Radware may release updated versions of FireProof software. Upload these updated versions to benefit from increased functionality and performance. Software download can accessed be via Configware, or via ASCII terminal, refer to *Appendix C* for further details. A password is required when upgrading the software. The password is provided with the new software documentation.

Note: If upload is not successful, current FireProof software does not change. If download is successful, new software is not implemented until you reset the device.

Caution: Before uploading in VLAN regular mode, disable redundancy.

☞ **To upload software:**

1. From the **File** menu, select **Software Download**. The *Update Device Software* window is displayed.



2. In the **File Name** field, enter the name of the file. Alternatively, click **Browse** to search the directory tree for the file.
3. In the **Password** field, enter the password received with the new software version.
   Note: The password is case sensitive.
4. Enter the software version number as specified in the new software documentation.
5. Click **Set**. The status of the upload is displayed in the **Progress Status** field.
6. You are prompted to restart the device.

Monitoring FireProof Performance

This chapter describes how to view performance graphs of your Radware network devices. You can graph statistics that show the performance of devices as a whole or of specific interfaces of the devices.

The BadFrames SNMP counter of certain devices is automatically monitored, and by default you will be informed when an unusually high concentration of error frames occur. The relevant parameters are called the Threshold Parameters. You can modify the Threshold parameters, and you can also disable threshold reporting.

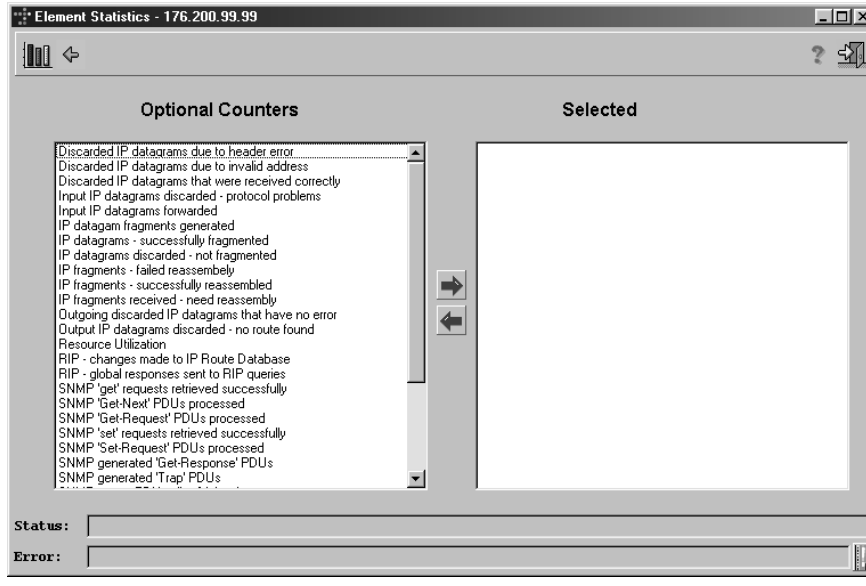
The following sections are discussed in this chapter:

- **Element Statistics**, page 4-2.
- **IP Interface Statistics**, page 4-9.
- **Firewall Statistics**, page 4-11.
- **Policy Statistics**, page 4-13.
- **Port Statistics**, page 4-15.

Element Statistics

☞ **To graph element statistics:**

1. From the **Performance** menu, choose **Element Statistics**. The *Element Statistics* window is displayed, as shown below.


Element Statistics - 176.200.99.99
Optional Counters
Selected
Discarded IP datagrams due to header error
Discarded IP datagrams due to invalid address
Discarded IP datagrams that were received correctly
Input IP datagrams discarded - protocol problems
Input IP datagrams forwarded
IP datagam fragments generated
IP datagrams - successfully fragmented
IP datagrams discarded - not fragmented
IP fragments - failed reassembely
IP fragments - successfully reassembled
IP fragments received - need reassembly
Outgoing discarded IP datagrams that have no error
Output IP datagrams discarded - no route found
Resource Utilization
RIP - changes made to IP Route Database
RIP - global responses sent to RIP queries
SNMP 'get' requests retrieved successfully
SNMP 'Get-Next' PDUs processed
SNMP 'Get-Request' PDUs processed
SNMP 'set' requests retrieved successfully
SNMP 'Set-Request' PDUs processed
SNMP generated 'Get-Response' PDUs
SNMP generated 'Trap' PDUs
Status:
Error:

2. From the **Optional Counters** list, choose the counters to graph.
3. Click **Show Graph**. The *Element Statistics Graph* window is displayed. You can change the look and behavior of the graph using the control panel.

☞ **To access the control panel:**

- Click **Control Panel**. The Control Panel contains the following menus:

  Graph Type: The graph type menu contains a selection of different graph views including: Bar, Area, Plot, Scatter Plot, Stacking Bar, Stacking Area, and Pie.
  Data Buffer Size: The number of past graph samples stored. The greater the number, the more samples are stored for later review.

Monitor Size: The number of graph samples that are displayed on the screen.
Sample Time: The amount of time between samples, in seconds.
Presentation Units: The average number of events, per number of seconds entered here, based on the the total number of events recorded for the duration of the Sample Time. For example, if the Presentation Units is set as 1, and the Sample Time is set as 5, the graph will display the average number of events per 1 second based on the last 5 seconds of data. Changing the value of the Presentation Units will change the display of all graphs still in the buffer.

☞ **To review the last compiled graph:**

- Click **Show Last**. The last graph that was compiled is displayed.

The following counters can be graphed:

Discarded IP datagrams due to header error	The number of input datagrams discarded due to errors in their IP headers, including bad checksums, version number mismatch, other format errors, time-to-live exceeded, errors discovered in processing their IP options, etc."
Discarded IP datagrams due to invalid address	The number of input datagrams discarded because the IP address in their IP header's destination field was not a valid address to be received at this entity. This count includes invalid addresses (e.g., 0.0.0.0) and addresses of unsupported Classes (e.g., Class E). For entities which are not IP Gateways and therefore do not forward datagrams, this counter includes datagrams discarded because the destination address was not a local address.

Discarded IP datagrams that were received correctly	The number of input datagrams that were received correctly.
Input IP datagrams discarded -protocol problems	The number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
Input IP datagrams forwarded	The number of input datagrams for which this entity was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination. In entities which do not act as IP Gateways, this counter will include only those packets which were Source-Routed via this entity, and the Source - Route option processing was successful.
IP datagram fragments generated	The number of IP datagram fragments that have been generated as a result of fragmentation at this entity.
IP datagrams - successfully fragmented	The number of IP datagrams that have been successfully fragmented at this entity.
IP datagrams discarded - not fragmented	The number of IP datagrams that have been discarded because they needed to be fragmented at this entity but could not be, e.g., because their Don't Fragment flag was set.

IP fragments - failed reassembly	The number of failures detected by the IP re-assembly algorithm (for whatever reason: timed out, errors, etc). Note that this is not necessarily a count of discarded IP fragments since some algorithms (notably the algorithm in RFC 815) can lose track of the number of fragments by combining them as they are received.
IP fragments - successfully reassembled	The number of IP datagrams successfully re-assembled.
IP fragments received - need reassembly	The number of IP fragments received which needed to be reassembled at this entity.
Outgoing discarded IP datagrams that have no error	The number of output IP datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (e.g., for lack of buffer space). Note that this counter would include datagrams counted in ipForwDatagrams if any such packets met this (discretionary) discard criterion.
Output IP datagrams discarded - no route found	The number of IP datagrams discarded because no route could be found to transmit them to their destination. Note that this counter includes any packets counted in ipForwDatagrams which meet this `no-route' criterion. Note that this includes any datagarms which a host cannot route because all of its default gateways are down.

Resource Utilization	The percent of the device's CPU currently utilized.
RIP - changes made to IP Route Database	The number of changes made to the IP Route Database by RIP.
RIP - global responses sent to RIP queries	The number of responses sent to RIP queries from other systems.
SNMP 'get' requests retrieved successfully	The total number of MIB objects which have been retrieved successfully by the SNMP protocol entity as the result of receiving valid SNMP Get-Request and Get-Next PDUs.
SNMP 'Get-Next' PDUs processed	The total number of SNMP Get-Request PDUs which have been accepted and processed by the SNMP protocol entity.
SNMP 'Get-Request' PDUs processed	The total number of SNMP Get-Request PDUs which have been accepted and processed by the SNMP protocol entity.
SNMP 'set' requests retrieved successfully	The total number of MIB objects which have been altered successfully by the SNMP protocol entity as the result of receiving valid SNMP Set-Request PDUs.
SNMP 'Set-Request' PDUs processed	The total number of SNMP Set-Request PDUs which have been accepted and processed by the SNMP protocol entity.
SNMP generated 'Get-Response' PDUs	The total number of SNMP Get-Response PDUs which have been generated by the SNMP protocol entity.

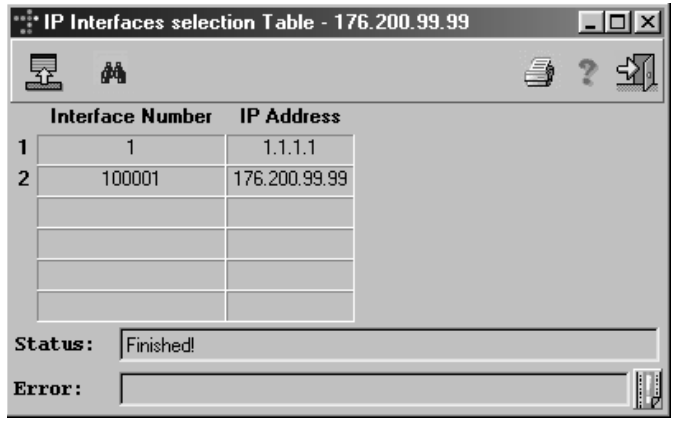
SNMP generated 'Trap' PDUs	The total number of SNMP Trap PDUs which have been generated by the SNMP protocol entity.
SNMP output PDUs - 'badValues'	The total number of SNMP PDUs which were generated by the SNMP protocol entity and for which the value of the error-status field is 'badValue'.
SNMP output PDUs - 'genErr'	The total number of SNMP PDUs which were generated by the SNMP protocol entity and for which the value of the error-status field is 'genErr'.
SNMP output PDUs - 'noSuchName'	The total number of SNMP PDUs which were generated by the SNMP protocol entity and for which the value of the error-status is 'noSuchName'.
SNMP output PDUs - 'tooBig'	The total number of SNMP PDUs which were generated by the SNMP protocol entity and for which the value of the error-status field is 'tooBig.'
Successfully delivered IP datagrams	The total number of input datagrams successfully delivered to IP user-protocols (including ICMP).
Total IP datagrams queued for transmission	The total number of IP datagrams which local IP user-protocols (including ICMP) supplied to IP in requests for transmission. Note that this counter does not include any datagrams counted in ipForwDatagrams.

Total number of incoming IP datagrams	The total number of input datagrams received from interfaces, including those received in error.
Total SNMP messages received	The total number of Messages delivered to the SNMP entity from the transport service.
Total SNMP output messages passed	The total number of SNMP Messages, which were passed from the SNMP protocol entity to the transport service.

IP Interface Statistics

☞ **To graph IP interface statistics:**

1. From the **Performance** menu, choose **IP Statistics**. The *IP Statistics* window is displayed, as shown below.



2. From the *IP Statistics* window, select a table entry.
3. Click **Perform**. The *IP Statistics Table* window is displayed.
4. From the **Optional Counters** list, choose the counters to graph.
5. Click **Show Graph**. The *IP Statistics Graph* window is displayed.

You can change the look and behavior of the graph using the control panel.

☞ **To access the control panel:**

- Click **Control Panel**. The Control Panel contains the following menus:

  Graph Type: The graph type menu contains a selection of different graph views including: Bar, Area, Plot, Scatter Plot, Stacking Bar, Stacking Area, and Pie.
  Data Buffer Size: The number of past graph samples stored. The greater the number, the more samples are stored for later review.
  Monitor Size: The number of graph samples that are displayed on the screen.
  Sample Time: The amount of time between samples, in seconds.

Presentation Units: The average number of events, per number of seconds entered here, based on the the total number of events recorded for the duration of the Sample Time. For example, if the Presentation Units is set as 1, and the Sample Time is set as 5, the graph will display the average number of events per 1 second based on the last 5 seconds of data. Changing the value of the Presentation Units will change the display of all graphs still in the buffer.

☞ **To review the last compiled graph:**

- Click **Show Last**. The last graph that was compiled is displayed.

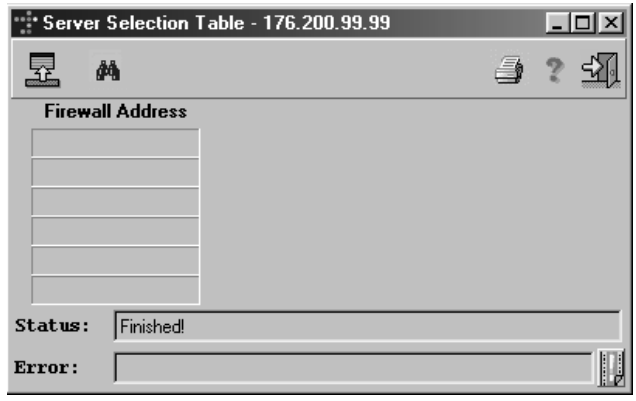
The following counters can be graphed:

Interface's RIP - response packets discarded	The number of RIP response packets received by the RIP process which were subsequently discarded for any reason (e.g. a version 0 packet, or an unknown command type).
Interface's RIP - routes ignored	The number of routes, in valid RIP packets, which were // ignored for any reason (e.g. unknown address family, or invalid metric).
Interface's RIP - updates sent	The number of triggered RIP updates actually sent on this interface. This explicitly does NOT include full updates sent containing new information.

Firewall Statistics

☞ **To monitor application statistics:**

1. From the **Performance** menu, choose **Firewall Statistics**. The *Firewall Statistics* window is displayed.



2. Select a server farm.
3. Click **Perform**. The *Firewall Statistics* window opens.
4. From the **Optional Counters** list, choose the counters to graph.
5. Click **Show Graph**. The *Device Application Specifics Graph* is displayed.

You can change the look and behavior of the graph using the control panel.

☞ **To access the control panel:**

- Click **Control Panel**. The Control Panel contains the following menus:

  Graph Type: The graph type menu contains a selection of different graph views including: Bar, Area, Plot, Scatter Plot, Stacking Bar, Stacking Area, and Pie.
  Data Buffer Size: The number of past graph samples stored. The greater the number, the more samples are stored for later review.
  Monitor Size: The number of graph samples that are displayed on the screen.
  Sample Time: The amount of time between samples, in seconds.

☞ **To review the last compiled graph:**

- Click **Show Last**. The last graph that was compiled is displayed.

The following counters can be graphed:

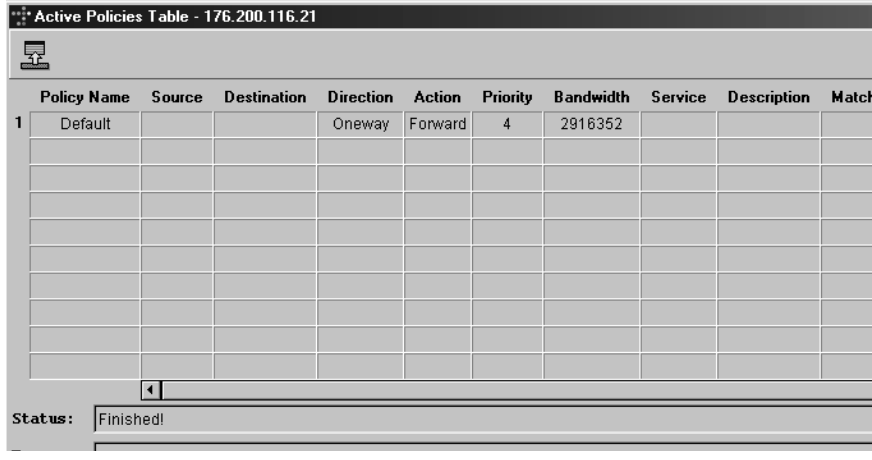
Active users	Number of currently active users attached to this firewall.
Frames peak rate	Maximum number of frames per second dispatched to the firewall since the last reset.
Frames current rate	Number of frames per second dispatched to the firewall.
Frames maximum rate	Maximal number of frames per second dispatched to the firewall.

Policy Statistics

You can generate statistics regarding the policies you have created. Refer to *Configuring Bandwidth Management (BWM)* in Chapter 3 for further details.

☞ **To monitor policy statistics:**

1. From the Performance menu, choose Policy Statistics. The *Active Policies Selection Table* window is displayed.



2. Select a policy name.
3. Click **Perform**. The *Policy Statistics* window is displayed.
4. From the **Optional Counters** list, choose the counters you require to graph.
5. Click **Show Graph**. The *Graph of Policy Statistics* window is displayed.

You can change the look and behavior of the graph using the control panel.

☞ **To access the control panel:**

- Click **Control Panel**. The Control Panel contains the following menus: **Graph Type:** The graph type menu contains a selection of different graph views including: Bar, Area, Plot, Scatter Plot, Stacking Bar, Stacking Area, and Pie.

Data Buffer Size: The number of past graph samples stored. The greater the number, the more samples are stored for later review.
Monitor Size: The number of graph samples that are displayed on the screen.
Sample Time: The amount of time between samples, in seconds.

☞ **To review the last compiled graph:**

- Click **Show Last**. The last graph that was compiled is displayed.

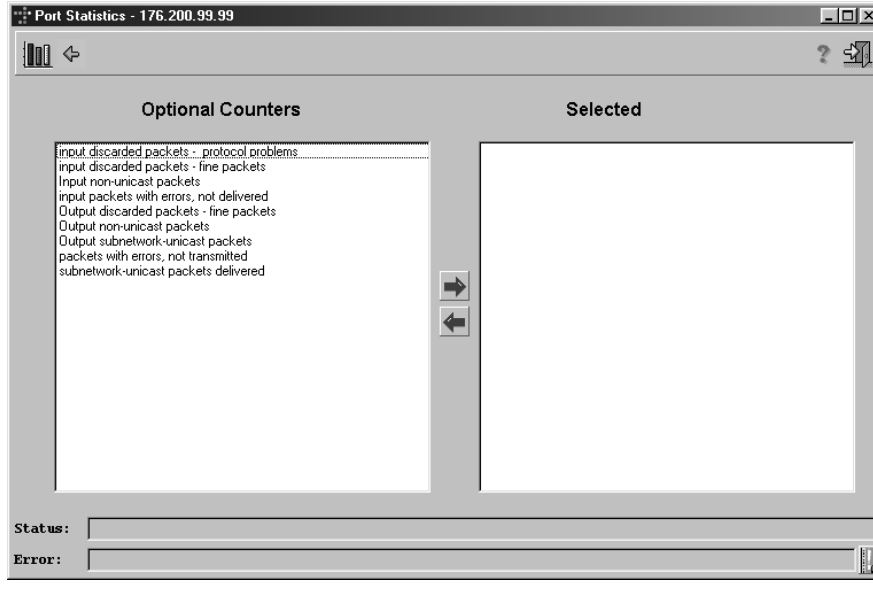
The following counters can be graphed:

Average Bandwidth	Displays the average amount of bandwidth used by the selected policy.
Peak Average Bandwidth	Displays the peak average amount of bandwidth used by the selected policy.
Used Bandwidth	Displays the amount of bandwidth used by the selected policy.

Port Statistics

☞ **To monitor the performance of port specifics:**

1. Select a port on the Configware software zoom view. The port is highlighted.
2. From the **Performance** menu, choose **Port Statistics**. The *Port Statistics* window is displayed.



3. From the **Optional Counters** list, choose the counters to graph.
4. Click **Show Graph**. The *Port Statistics Graph* window is displayed.

You can change the look and behavior of the graph using the control panel.

☞ **To access the control panel:**

- Click **Control Panel**. The Control Panel contains the following menus:

  Graph Type: The graph type menu contains a selection of different graph views including: Bar, Area, Plot, Scatter Plot, Stacking Bar, Stacking Area, and Pie.

Data Buffer Size: The number of past graph samples stored. The greater the number, the more samples are stored for later review.
Monitor Size: The number of graph samples that are displayed on the screen.
Sample Time: The amount of time between samples, in seconds.
Presentation Units: The average number of events, per number of seconds entered here, based on the the total number of events recorded for the duration of the Sample Time. For example, if the Presentation Units is set as 1, and the Sample Time is set as 5, the graph will display the average number of events per 1 second based on the last 5 seconds of data. Changing the value of the Presentation Units will change the display of all graphs still in the buffer.

☞ **To review the last compiled graph:**

- Click **Show Last**. The last graph that was compiled is displayed.

The following counters can be graphed:

Subnetwork-unicast packets delivered	The number of subnetwork-unicast packets delivered to a higher-layer protocol.
Input non-unicast packets	The number of non-unicast (i.e., subnetwork- broadcast or subnetwork-multicast) packets delivered to a higher-layer protocol.
Input discarded packets - fine packets	The number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.

Input packets with errors, not delivered	The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
Input discarded packets - protocol problems	The number of packets received via the interface which were discarded because of an unknown or unsupported protocol.
Output subnetwork-unicast packets	The total number of packets that higher-level protocols requested be transmitted to a subnetwork-unicast address, including those that were discarded or not sent.
Output non-unicast packets	The total number of packets that higher-level protocols requested be transmitted to a non- unicast (i.e., a subnetwork-broadcast or subnetwork-multicast) address, including those that were discarded or not sent.
Output discarded packets - fine packets	The number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.
Packets with errors, not transmitted	The number of outbound packets that could not be transmitted because of errors.

APPENDIX a

Example Configurations

This chapter discusses FireProof example configurations.

The following examples are included:

- **Example 1: Simple FireProof Configuration**, page A-2.
- **Example 2: VLAN Configuration**, page A-4.
- **Example 3: One Leg (Lollipop) Configuration**, page A-6.
- **Example 4: Typical FireProof Configuration**, page A-8.
- **Example 5: Redundant FireProof Configuration**, page A-11.
- **Example 6: Redundant FireProof Configuration Using VLAN**, page A-14.
- **Example 7: DMZ Support with Port Connectivity Rules**, page A-17.
- **Example 8: Application Grouping with FireProof**, page A-19.
- **Example 9: QoS Used for Access Control**, page A-21.
- **Example 10: Bandwidth Management**, page A-25.
- **Example 11: Application Security**, page A-29.

Example 1: Simple FireProof Configuration

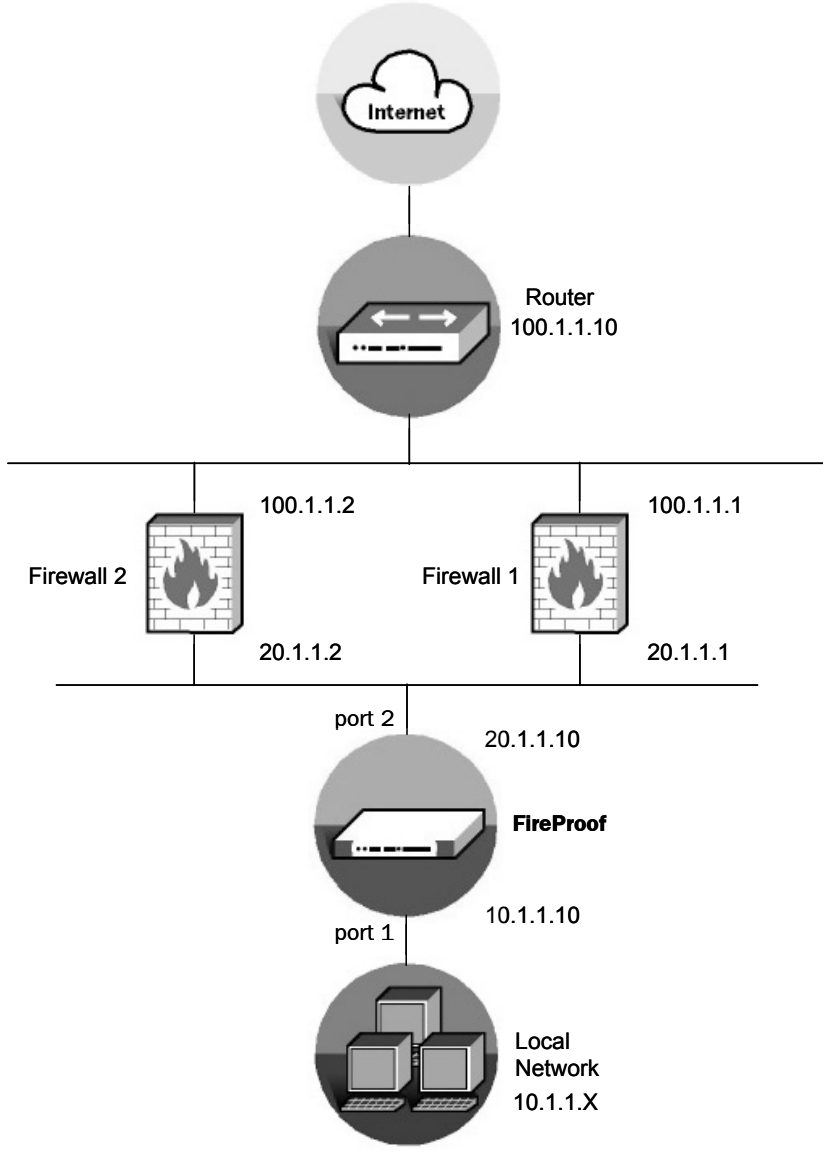


Figure A-1: Local Network and Firewalls on Different Subnets

Properties:

- The Local Network Side and the Firewall Side are on different subnets.
- Firewalls must be configured with the Network Address Translation feature enabled, in order to ensure return traffic uses the correct firewall for each session.
- The firewalls can be proxy firewalls. In this case, make use of a virtual IP to represent the proxy address of the firewalls for the configured clients.

Configuration:

1. Define two IP interfaces on the FireProof. One with a 10.1.1.10 address on port 1 and one with a 20.1.1.10 address on port 2.
2. In the *Firewalls Table* window (**FireProof**/**Firewall Table**), insert firewalls 20.1.1.1 and 20.1.1.2.
3. The default router of the FireProof should be one of the firewall's internal interfaces (for example 20.1.1.1). The next hop router of the firewalls for the local network should be the 20.1.1.10 address of the FireProof assigned to port 2. Default router for the Local side should be the FireProof internal address (10.1.1.10).
4. In the *Global Configuration* window (**FireProof**/**Global Configuration**), adjust the **Dispatch Method** and the **Connectivity Check** configuration, as required.
5. It is recommended to use **Full Path Health Monitoring** to ensure the remote side of the firewall is operational. In the *Firewall Table* window (**FireProof**/**Firewall Table**), select a firewall and click **Full Path Health Monitoring**. For example, configure the router at 100.1.1.10 as the Check Address for each of the firewalls.
6. When proxy firewalls are used, a Virtual IP should be configured, as discussed in Chapter 3:
    a. In the *Virtual IP Table* window (**FireProof**/**Virtual IP)**, insert a virtual IP address, for example 10.1.1.100. The clients should be configured to use that address as the proxy address.
    b. In the *Virtual IP Table* window, select the vitual IP address and click **Opens Mapped Table**, or select Mapped IP from the FireProof menu. For each Firewall IP address, insert the firewall IP and for each Firewall NAT address insert the Firewall IP as well.

Example 2: VLAN Configuration

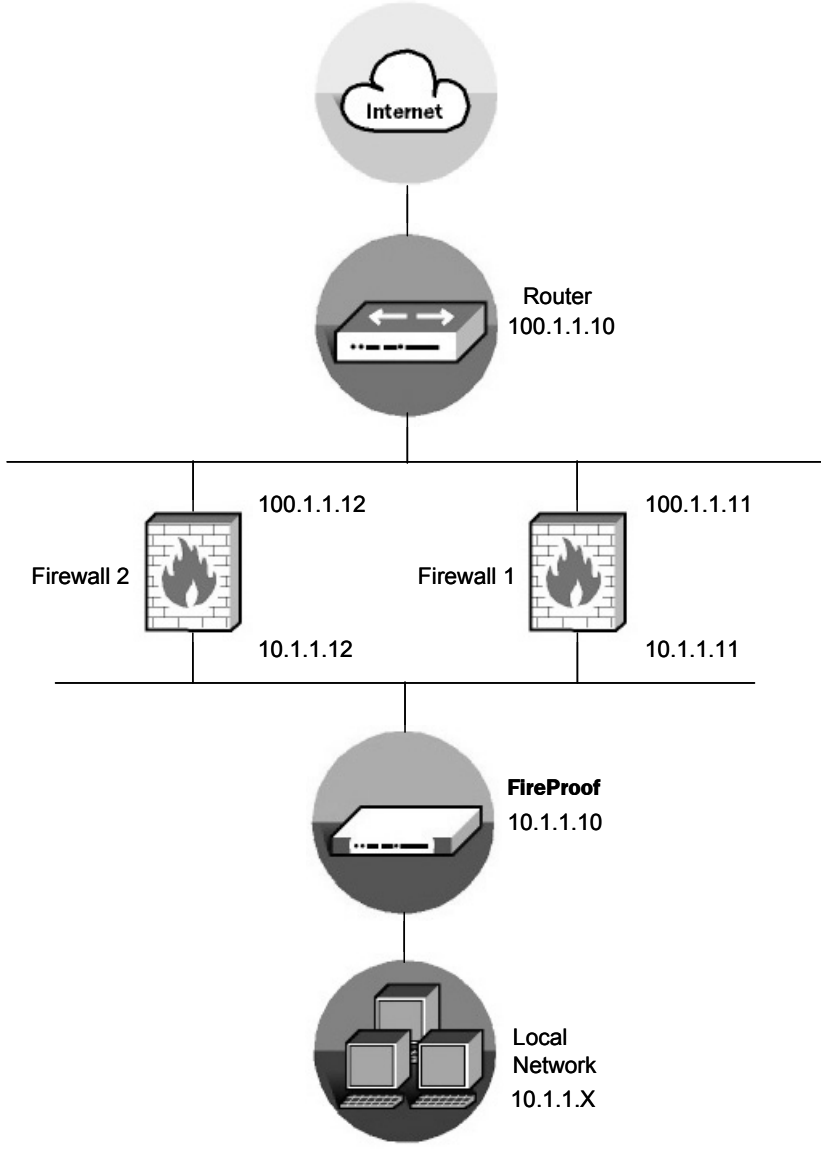


Figure A-2: Local Network and Firewall on Same Subnet

Properties:

- The Local Network Side and the Firewall Side are on the same IP subnet.
- Firewalls must be configured with the Network Address Translation feature enabled, in order to ensure return traffic uses the correct firewall for each session.

Configuration:

1. Define an IP VLAN that includes ports 1 and 2. The FireProof includes an IP VLAN by default. This VLAN can be edited to include ports 1 and 2, or an entirely new VLAN can be configured. VLANs are configured in the *Virtual LAN Table* window (**Device**/**VLAN**).
   Note: To operate the load balancing in a VLAN network topology you must set your VLAN to be a "Regular" VLAN type.
2. Define an IP interface with the address 10.1.1.10 to be associated with the VLAN defined in step 1 above. If there is an existing IP interface with a 10.1.1.10 address, it should be edited so that the 10.1.1.10 address is associated with the VLAN. If there is no existing IP interface with a 10.1.1.10 address, one must be created.
3. In the *Firewalls Table* window (**FireProof**/**Firewall Table**), insert firewalls 10.1.1.11 and 10.1.1.12.
4. The default router of the FireProof should be one of the firewall's internal interfaces, for example 10.1.1.11.
5. The default gateway of clients on the 10.1.1.X subnet should be the FireProof at 10.1.1.10. No route to 10.1.1.X is required on the firewalls.
6. It is recommended to use **Full Path Health Monitoring** to ensure the remote side of the firewall is operational. In the *Firewall Table* window (**FireProof**/**Firewall Table**), select a firewall and click **Full Path Health Monitoring**. For example, configure the router at 100.1.1.10 as the Check Address for each of the firewalls.

Example 3: One Leg (Lollipop) Configuration

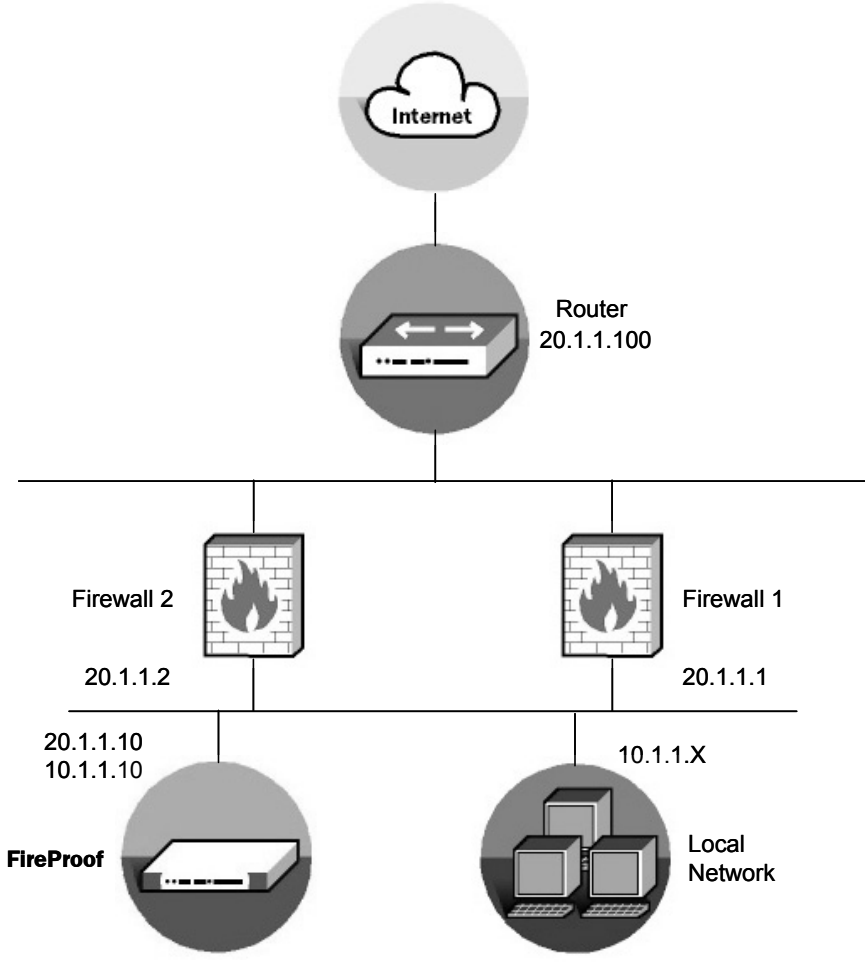


Figure A-3 - Local Network Subnet and Firewall Subnet on the same LAN

Properties:

- The Local Network Side Subnet and the Firewall Side Subnet are on the same LAN. All connections can be made to the same switch.
- Firewalls must be configured with the Network Address Translation feature enabled, in order to ensure return traffic uses the correct firewall for each session.

Configuration:

1. Define two IP interfaces on port 1 of the FireProof. The first with IP address 10.1.1.10 and the second with IP address 20.1.1.10, then make sure both IP addresses are associated with port 1.
2. In the *Firewalls Table* window (**FireProof**/**Firewall Table**), insert firewalls 20.1.1.1 and 20.1.1.2.
3. The default router of the FireProof should be one of the firewall's internal interfaces, for example 20.1.1.1. The router of the firewalls for the local network should be the 20.1.1.10 address of the FireProof. The default router for the Local Network should be the FireProof address (10.1.1.10).
4. It is recommended to use **Full Path Health Monitoring** to ensure the remote side of the firewall is operational. In the *Firewall Table* window (**FireProof**/**Firewall Table**), select a firewall and click **Full Path Health Monitoring**. For example, configure the router at 20.1.1.100 as the Check Address for each of the firewalls.

Example 4: Typical FireProof Configuration

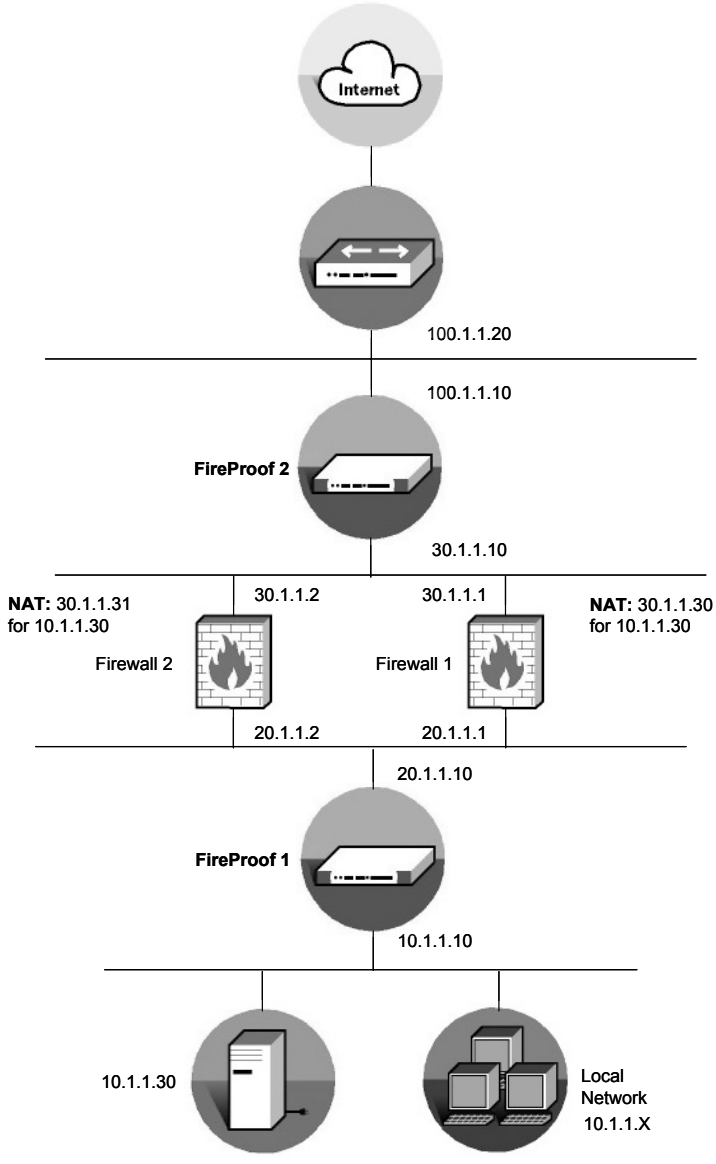


Figure A-4 - Typical FireProof Configuretion

Properties:

- Typical configuration when inbound traffic is required to servers on the local subnet, with or without NAT configured for the firewalls.
- The Local Network Side and the Firewall Side are on different subnets.
- The firewalls can be configured with NAT for all the clients on the local network, or for some of them. This configuration caters to transparent firewalls and firewalls that implement NAT.
- When static NAT is used on the firewalls, a virtual IP address is created on the external FireProof to ensure that different NAT addresses, on different firewalls, for a single internal host, are seen as a single public address. This provides load balancing and high availability between the NAT addresses.

Configuration:

1. Define two IP interfaces on FireProof #1. One with a 10.1.1.10 address and one with a 20.1.1.10 address.
2. In the *Firewall Table* window (**FireProof**/**Firewall Table**), on FireProof #1. Insert firewalls 20.1.1.1 and 20.1.1.2.
3. Define two IP interfaces on FireProof #2 similarly. One with a 30.1.1.10 address, and one with a 100.1.1.10 address.
4. In the *Firewall Table* window (**FireProof**/**Firewall Table**), on FireProof #2. Insert firewalls 30.1.1.1 and 30.1.1.2.
    - The router of FireProof #2 for the local network should be one of the firewalls, for example 30.1.1.1, and its default gateway to the Internet is the access router 100.1.1.20.
    - The router of the firewalls for the local network should be the 20.1.1.10 address of FireProof #1.
    - The default router of the firewalls (to connect to the internet) should be the FireProof #2 internal address, for example 30.1.1.10.
    - The default router of FireProof #1 should be one of the firewall's internal addresses,for example 20.1.1.1.
    - The route of the access router to the local network should be FireProof #2 external address (100.1.1.10).
    - The default router of the local network should be FireProof #1 address (10.1.1.10).

5. If the firewalls use static NAT addresses, configure a virtual IP address in the Virtual IP table of FireProof #2. This is necessary in order to have one public address for each server, rather than as many public IP addresses as the number of firewalls. Using VIP on the external FireProof assures that this single public IP is always online and is load balanced among the firewalls.
   a. In the *Virtual IP Table* window (**Device**/**VLAN**), insert a virtual IP address, for example 10.1.1.100. This is the public IP address representing the internal server 10.1.1.30.
   b. In the *Virtual IP Table* window (**Device**/**VLAN**), select the virtual IP address and click **Opens Mapped Table**, or select **Mapped IP** from the **FireProof** menu. For each Firewall IP address, insert the firewall IP and for each Firewall NAT address insert the Firewall NAT for the server. For example, NAT 30.1.1.30 for firewall #1 and NAT 30.1.1.31 for firewall #2
6. When proxy firewalls are used, a Virtual IP should be configured on FireProof #1.
7. It is recommended to use **Full Path Health Monitoring** to ensure the remote side of the firewall is operational. In the *Firewall Table* window (**FireProof**/**Firewall Table**), select a firewall and click **Full Path Health Monitoring**. For example, configure the internal IP of FireProof #2 30.1.1.10 as the Check Address for each of the firewalls configured in FireProof #1, and vice versa. Use IP 20.1.1.10 for the Check Address of the firewalls configured in FireProof #2.

Example 5: Redundant FireProof Configuration

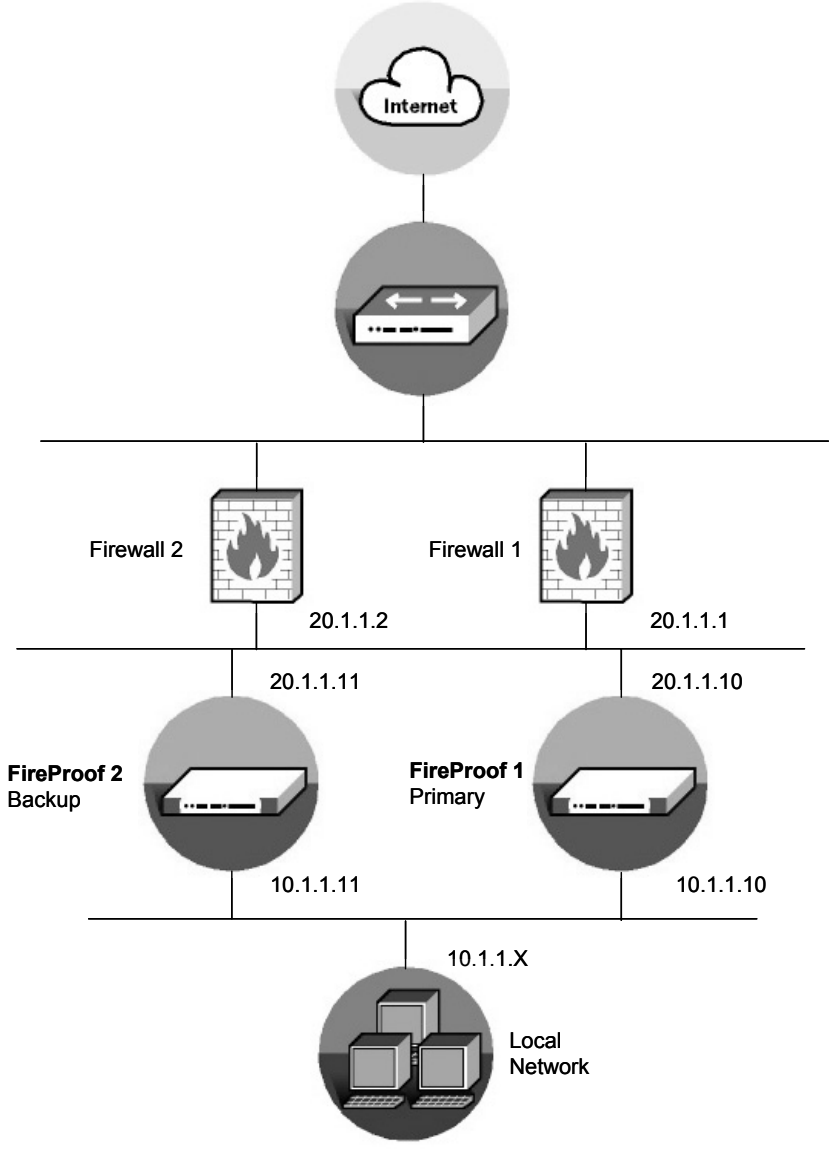


Figure A-5 - Redundant FireProof Units

Properties:

- The Local Network Side and the Firewall Side are on different subnets.
- Firewalls must be configured with the Network Address Translation feature enabled.

Note: Only the primary FireProof is active; the backup is idle. The reason for this is that the local network can have only one of the FireProof units configured as its default router (FireProof #1 in this case), so traffic coming from FireProof #2 will not be returned through it but through FireProof #1. FireProof #1 does not hold session information about sessions that were sent via FireProof #2, and thus is unable to send it back to the firewalls correctly.

If FireProof #1 fails, and FireProof #2 is configured as its backup, the traffic will be managed by FireProof #2. The firewall will still send the traffic to its next hop router, but FireProof #2 will take over the failing FireProof #1 IP addresses, and handle the traffic correctly.

Configuration:

1. Define two IP interfaces on FireProof #1. One with a 10.1.1.10 address on port 1 and one with a 20.1.1.10 address on port 2.
2. In the *Firewall Table* window (**FireProof**/**Firewall Table**), insert firewalls 20.1.1.1 and 20.1.1.2.
3. Define two IP interfaces on FireProof #2 similarly. One with a 10.1.1.11 address on port 1, and one with a 20.1.1.11 address on port 2.
4. Follow step 2 to configure the firewalls on FireProof #2. All parameters for firewalls should be similar to those configured on FireProof #1, in particular the **Firewall Mode** should be *Regular*.
5. Define FireProof #2 interfaces as redundant to those of FireProof #1. In the *IP Redundancy Table* window (**FireProof**/**Redundancy**/**IP Redundancy Table**) of FireProof #2, enter 10.1.1.11 and 20.1.1.11 as the interface addresses, and 10.1.1.10 and 20.1.1.10 as the main addresses, respectively.
6. Set the Global Redundancy Configuration for FireProof #1: In the *Global Redundancy Configuration* window (**FireProof**/**Redundancy**/**Global Configuration**), set the **IP Redundancy Status** to *Disabled* and the **Interface Grouping** to *Enabled*.

7. Set the Global Redundancy Configuration for FireProof #2: In the *Global Redundancy Configuration* window (**FireProof**/**Redundancy**/**Global Configuration**), set the **IP Redundancy Status** to *Enabled* and the **Interface Grouping** to *Disabled*.
8. The default router of both FireProof units should one of the firewall's internal addresses (for example: 20.1.1.1). The router of the firewalls for the local network should be the 20.1.1.10 address of FireProof #1. The default router of the local network should be the 10.1.1.10 address of FireProof #1.
9. It is recommended to use **Full Path Health Monitoring** to ensure the remote side of the firewall is operational. In the *Firewall Table* window (**FireProof**/**Firewall Table**), select a firewall and click **Full Path Health Monitoring**.

Example 6: Redundant FireProof Configuration Using VLAN

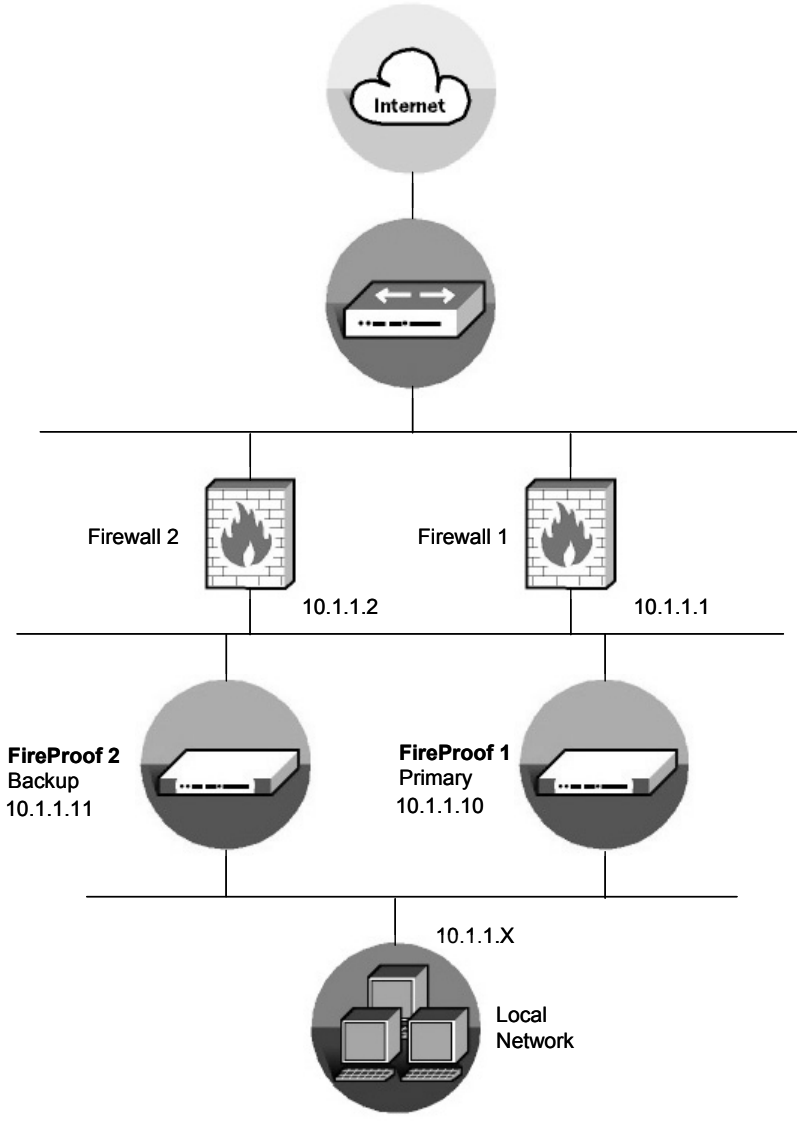


Figure A-6 - DMZ Support with Port Connectivity Rules

Properties:

- The Local Network side and the Next Hop Router side are on the same subnet.

Note: Only the primary FireProof is active; the backup is idle. The reason for this is that each host on the local subnet can have a single default gateway, and the same is true for each of the routers, a single next hop router towards the internal subnet. The FireProof must see all the packets from every session, in order to make sure a single firewall is used for each session. The internal hosts and the firewalls should all use the same FireProof as their gateway.
If FireProof #1 fails, and FireProof #2 is configured as its backup, the traffic will be managed by FireProof #2. The next hop router will still send the traffic to its router, but FireProof #2 will take over the failing FireProof #1 IP addresses, and handle the traffic correctly.

Active FireProof Configuration (FireProof #1):

1. Define an IP VLAN that includes ports 1 and 2. The FireProof includes an IP VLAN by default. This VLAN can be edited to include ports 1 and 2, or an entirely new VLAN can be configured. VLANs are configured in the *Virtual LAN Table* window (**Device**/**VLAN**).
   Note: To operate the load balancing in a VLAN network topology you must set your VLAN to be a *Regular* VLAN type.
2. Define an IP interface with the address 10.1.1.10 to be associated with the VLAN defined in step 1 above. If there is an existing IP interface with a 10.1.1.10 address, it should be edited so that this address is associated with the VLAN. If there is no existing IP interface with a 10.1.1.10 address, one must be created.
3. In the *Firewall Table* window (**FireProof**/**Firewall Table**), insert firewalls 10.1.1.1 and 10.1.1.2. Configure **Full Path Health Monitoring**, as required.
4. In the *Global Redundancy Configuration* window (**FireProof**/**Redundancy**/**Global Configuration**), ensure that in the **Interface Grouping** field is *Enabled* and the **IP Redundancy Admin Status** field is *Disabled*. Ensure that in the **VLAN Redundancy Device Mode** is set to *Active*. Refer to page 3-41, for further details about **Global Configuration** parameters.

Backup FireProof Configuration (FireProof #2):

1. Define an IP VLAN that includes ports 1 and 2. VLANs are configured in the *Virtual LAN Table* window (**Device**/**VLAN**).
   Note: To operate the load balancing in a VLAN network topology you must set your VLAN to be a *Regular* VLAN type.
2. Define an IP interface with the address 10.1.1.11 to be associated with the VLAN defined in step 1 above. If there is an existing IP interface with a 10.1.1.11 address, it should be edited so that this address is associated with the VLAN. If there is no existing IP interface with a 10.1.1.11 address, one must be created.
3. In the *Firewall Table* window (**FireProof**/**Firewall Table**), insert firewalls 10.1.1.1 and 10.1.1.2. Make sure **Firewall Mode** is set to *Regular*. Configure **Full Path Health Monitoring**, as required.
4. In the *Global Redundancy Configuration* window (**FireProof**/**Redundancy**/**Global Configuration**), ensure that in the **Interface Grouping** field is *Disabled*, and the **IP Redundancy Admin Status** field is *Enabled*. Ensure that the **VLAN Redundancy Device Mode** is set to *Backup*.
5. Define FireProof #2 interfaces as redundant to those of FireProof #1. In the *IP Redundancy Table* window (**FireProof**/**Redundancy**/**IP Redundancy Table**) of FireProof #2, enter 10.1.1.11 for the interface address and 10.1.1.10 as the main device IP address.

Notes:

1. In advanced configuration, any IP addresses owned by the main device, besides its interfaces IP addresses, such as NAT or VIP, should be configured similarly on the backup device, with **Redundancy Mode** set to *Backup*.
2. When using layer 3 switches between the FireProof devices, the **Backup Fake ARP** parameter might need to be changed. Refer to page 3-46 for further information.

Example 7: DMZ Support with Port Connectivity Rules

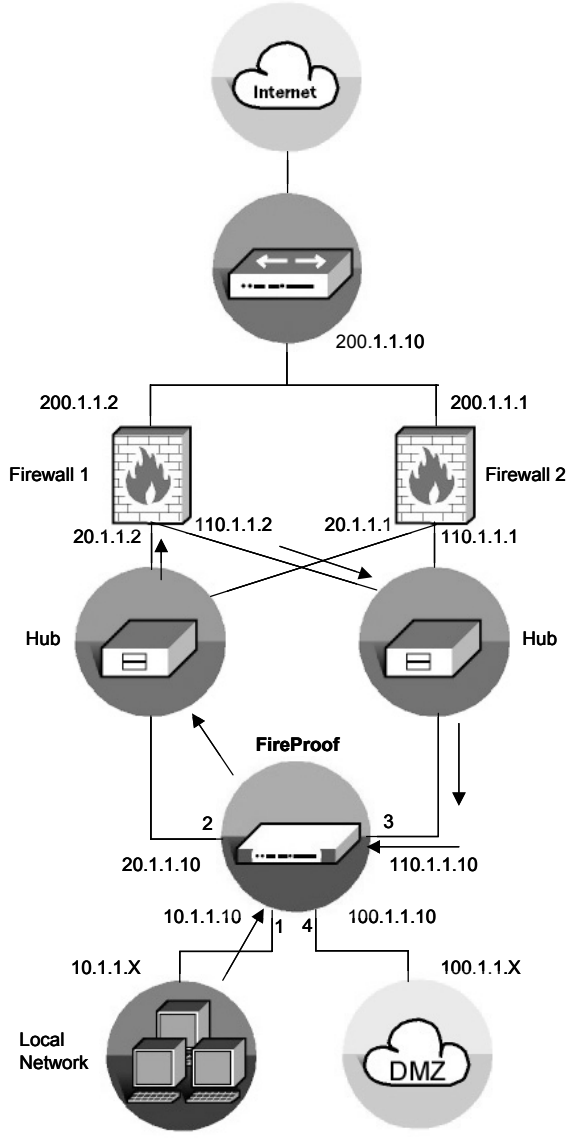


Figure A-7 - DMZ Support with Port Connectivity Rules

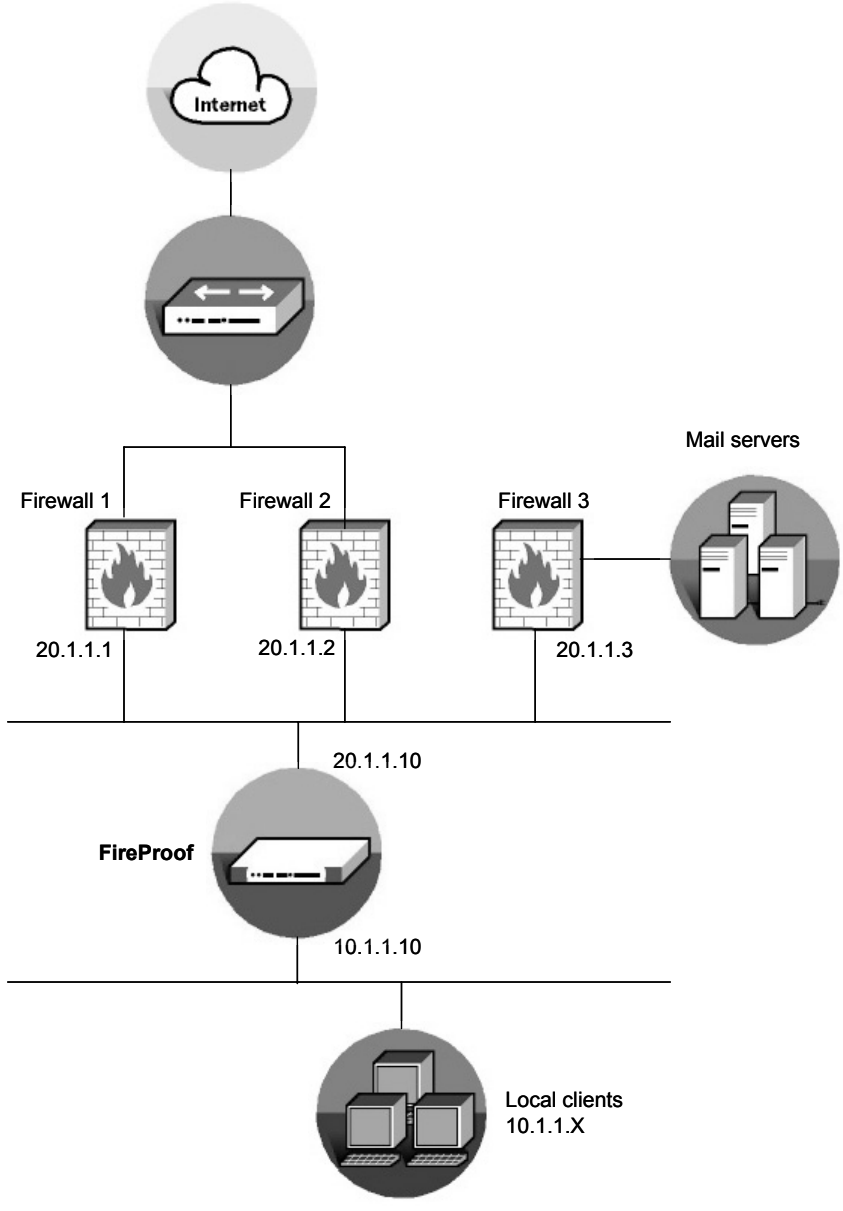
Properties:

- The Local Network and the DMZ are on different subnets.
- Each firewall has 3 interfaces: external, internal and DMZ. Load balancing is required for the DMZ and internal sides. Typically two devices can be used, however the same functionality can be acheived using a single device and port rules.
- Firewalls should be configured with the Network Address Translation feature enabled, or an external FireProof can be used.

Configuration:

1. Define four IP interfaces on FireProof. One with a 10.1.1.10 address on port 1, one with a 20.1.1.10 address on port 2, one with a 110.1.1.10 address on port 3 and one with a 100.1.1.10 address on port 4.
2. In the *Firewall Table* window (**FireProof**/**Firewall Table**), insert firewalls 20.1.1.1, 20.1.1.2, 110.1.1.1 and 110.1.1.2.
3. Define FireProof port rules that ensure that traffic to and from port 1 arrives and exits only via port 2; and that traffic to and from port 3 arrives and exits only via port 4. This ensures separation of the DMZ and the local network. This configuration is available only from the console, type: "`rules set 1 2`", and "`rules set 3 4`".
   - The default router of the FireProof should be one of the firewalls. No further routes are required for the FireProof as the port rules dictate the routing behavior of the FireProof.
   - The router of the firewalls for the local network should be the 20.1.1.10 address of the FireProof.
   - The router of the firewalls for the DMZ should be the 110.1.1.10 address of the FireProof.
   - The default router of the firewalls to the Internet should be the access router, 200.1.1.10.
   - The default router of the local network to the Internet should be the 10.1.1.10 address on port 1 of the FireProof.
   - The default router for the DMZ to the Internet is the 100.1.1.10 address on port 4 of the FireProof.

Example 8: Application Grouping with FireProof



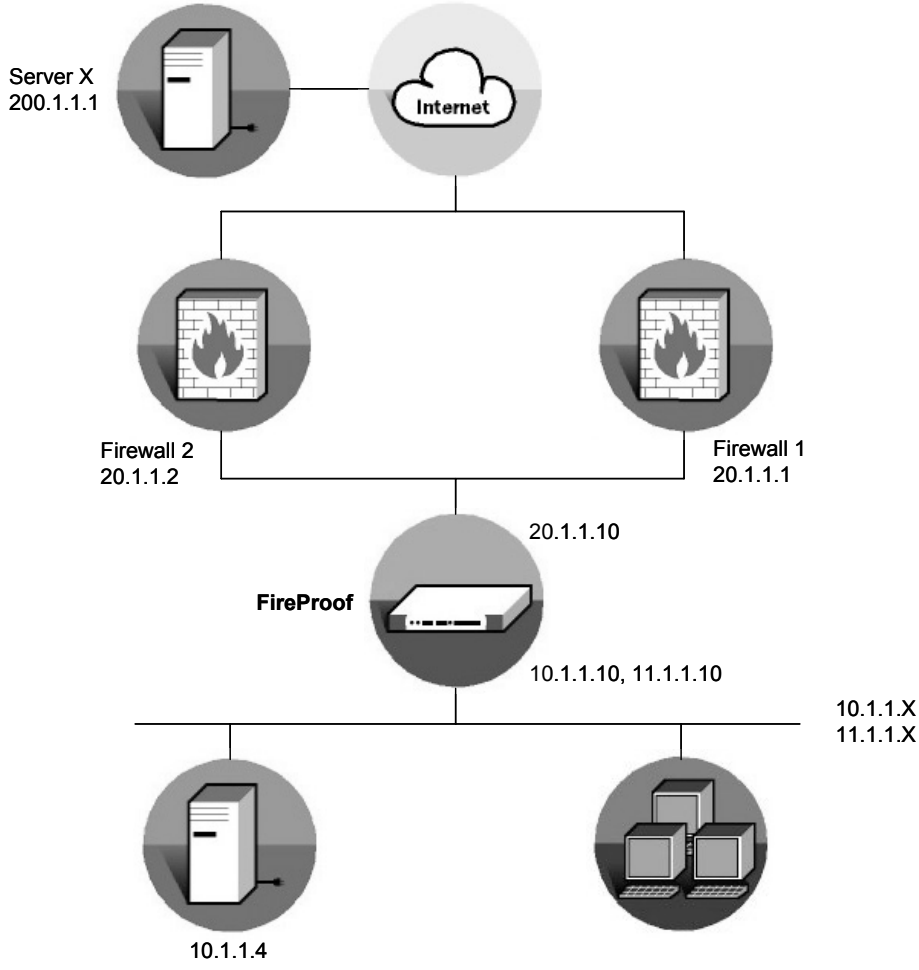
Properties:

- Three firewalls are used, one of them protects access to the mail servers, the other two protect traffic to and from the Internet.
- Different aging may be required for mail traffic.

Configuration:

1. Configure FireProof with the following IP addresses 10.1.1.10 and 20.1.1.10, for the required ports.
2. Configure the firewalls with the following addresses 20.1.1.1, 20.1.1.2 and 20.1.1.3 in the *Firewall Table* window, (**FireProof**/**Firewall Table**).
3. Configure the FireProof to send mail traffic only to firewall #3. In the *Application Port Grouping* window (**FireProof**/**Firewalls Advanced Configuration**/**Grouping**/**Application Grouping**), insert the **Application Port Number**, for example, SMTP, or type 25, and the **Firewall IP Address**, for example, 20.1.1.3.
4. If different aging is required for mail traffic, configure this in the *Application Aging Table* window (**FireProof**/**Firewalls Advanced Configuration**/**Aging by Application Port**). In the **Application Port** field, select SMTP, or type 25. In the **Aging Time** field, select the required aging.
5. In the *Global Configuration* window (**FireProof**/**Global Configuration**), set **Client Mode** to *Layer 4* in the **Client Table** tab, and set **Open New Entry for Different Source Port** to *Enabled*.

Example 9: QoS Used for Access Control

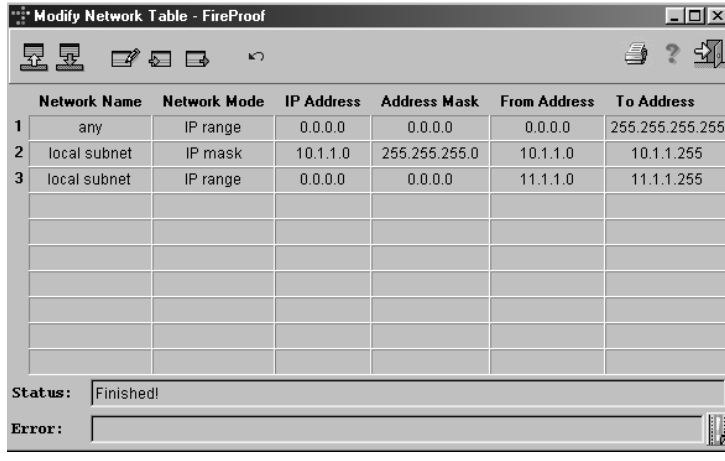


Properties:

- Server X at IP address 200.1.1.1 can communicate to the internal server using telnet or FTP. Otherwise, the server can be accessed using HTTP only.
- Internal users cannot access the 200.1.1.1 server.
- All other traffic through the device is blocked.

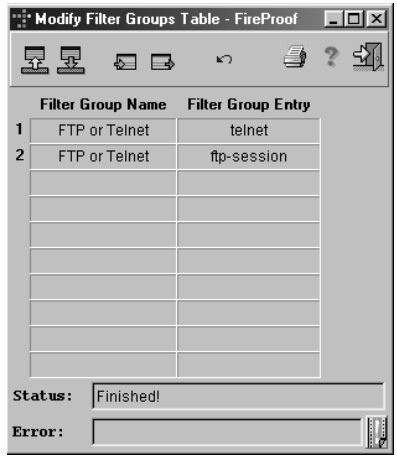
Configuration:

1. In the *Global Parameter*s window, (**QoS**/**Global Parameters**), select *Enabled* from the **Classification Mode** dropdown list.
2. In the *Modify Network Table* window, (**QoS**/**Modify Policies**/**Networks**), configure network for the local network. **For example:**

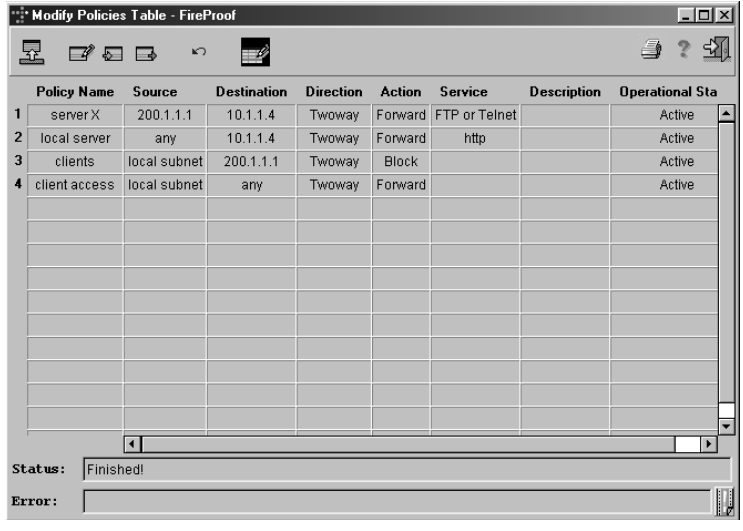


In order to simplify configuration, a network can consist of a combination of network subnets and ranges. For example:
Range = 11.1.1.0 - 11.1.1.255
Subnet = 10.1.1.0/255.255.255.0

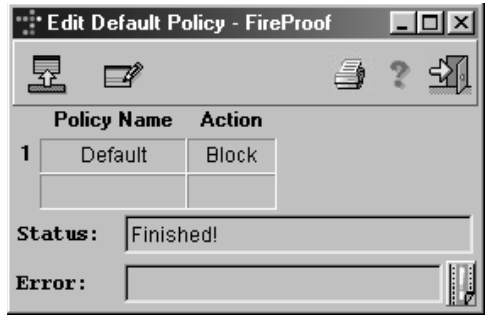
3. In the *Modify Filter Groups Table* window, (**QoS**/**Modify Policies**/**Services**/**Filter Groups**). Configure a group for the protocols allowed for communication between the remote server and the internal server. **For example:**



4. In the *Modify Policies Table* window, (**QoS**/**Modify Policies**/**Policies**). configure the following, for example:

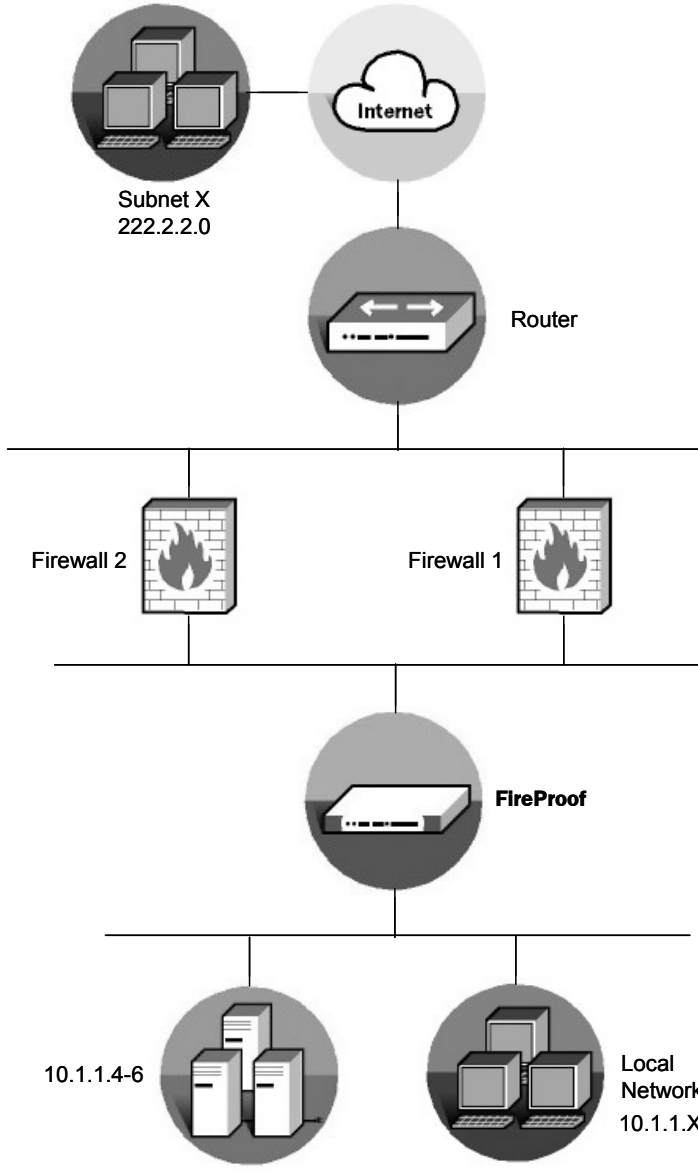

Modify Policies Table - FireProof
Policy Name Source Destination Direction Action Service Description Operational Sta
1 server X 200.1.1.1 10.1.1.4 Twoway Forward FTP or Telnet Active
2 local server any 10.1.1.4 Twoway Forward http Active
3 clients local subnet 200.1.1.1 Twoway Block Active
4 client access local subnet any Twoway Forward Active
Status: Finished!
Error:

5. In the *Modify Policies Table* window, (**QoS**/**Modify Policies**/**Policies**). use the **Edit Default Policy** button to set the default *Action*, as required.



6. From the *Update Confirmation* dialog box (**QoS**/**Update Policies**), click **OK** to activate the newly configured policies.

Example 10: Bandwidth Management



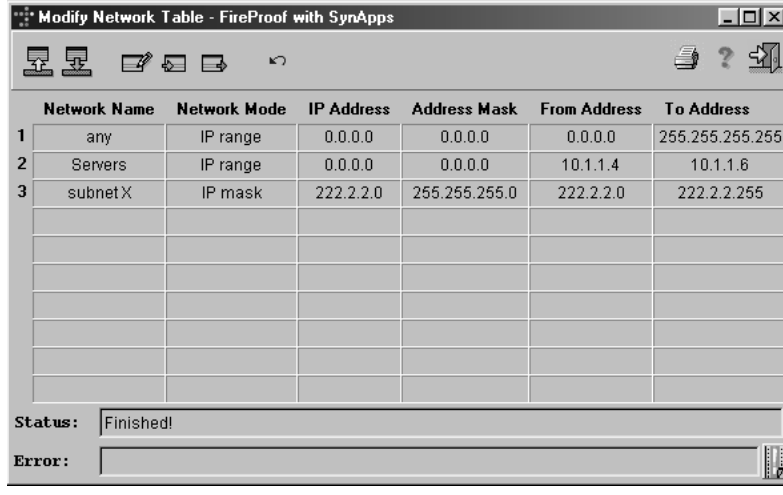
Note: SynApps license is required to access this functionality.

Properties:

- SMTP to the servers has highest priority.
- HTTP has higher priority than SMTP.
- HTTP traffic to users at subnet 222.2.2.0 has a low priority.
- FTP is limited to 200Kbit/s, and has a low priority.

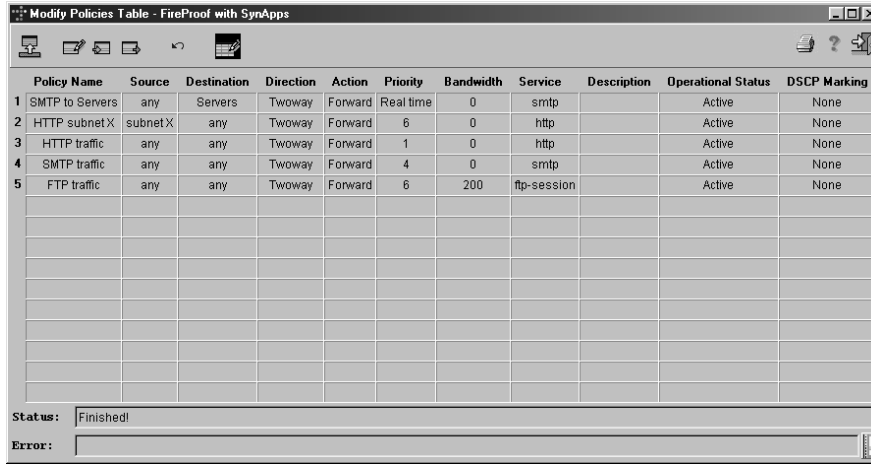
Configuration:

1. In the *Global Parameter*s window, (**QoS**/**Global Parameters**), select *Policies* from the **Classification Mode** dropdown list.
2. In the *Modify Network Table* window, (**QoS**/**Modify Policies**/**Networks**), configure network for the local servers.

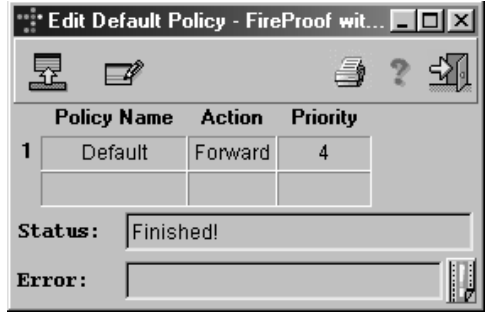


In order to simplify configuration, a network can consist of a combination of network subnets and ranges. For example, the servers' NAT consists of two ranges 201.11.11.4-6 and 202.22.22.4-6.

3. In the *Modify Policies Table* window, (**QoS**/**Modify Policies**/**Policies**), configure the following.


Modify Policies Table - FireProof with SynApps
Policy Name Source Destination Direction Action Priority Bandwidth Service Description Operational Status DSCP Marking
1 SMTP to Servers any Servers Twoway Forward Real time 0 smtp Active None
2 HTTP subnet X subnet X any Twoway Forward 6 0 http Active None
3 HTTP traffic any any Twoway Forward 1 0 http Active None
4 SMTP traffic any any Twoway Forward 4 0 smtp Active None
5 FTP traffic any any Twoway Forward 6 200 ftp-session Active None
Status: Finished!
Error:

4. In the *Modify Policies Table* window, (**QoS**/**Modify Policies**/**Policies**), use the **Edit Default Policy** button to set the default action and priority, as required.



6. From the *Update Confirmation* dialog box (**QoS**/**Update Policies**), click **OK** to activate the newly configured policies.

Notes:

1. When **Application Classification** is *Disabled*, meaning packets are classified rather than sessions, and when protocols requiring special support, such as FTP, Rshell and Rexec, are also being classified, it is recommended to use *Layer 4* in the **Client Table** mode.
2. When **Application Classification** is *Enabled*, meaning sessions are being classified, and when using protocols in the BWM policies, it is recommended to use *Layer 4* in the **Client Table** mode. The classification indication is kept in the Client Table in the relevant entry so that different entries are required for different protocols, and each has a different classification indication.

Example 11: Application Security

Properties:
The Application Security module can help protect your network from various attacks. This example illustrates a configuration which blocks the most typical and popular forms of attacks, such as SYN attack, Land attack, and others, while at the same time achieving high performance.

Note: SynApps license is required for this implementation.

Configuration:
1. From the **Security** menu, select **Application Security**, and then choose **Global Parameters**. The *Application Security Global Parameters* window is displayed.
2. In the **Start Protection** field, select *Enabled*.
3. Click **Set** and the click **OK** to reset the device to enable this module.
4. You need to define the policy by which the protection is run. From the **Security** menu, select **Application Security**, and then choose **Security Policy**. The *Security Policy* window is displayed.
5. Select the **Standard Protection** checkbox, in order to enable this feature.
6. Click **Set** to record your selection.

APPENDIX b

Troubleshooting

- This appendix provides solutions to some commonly encountered FireProof problems.

- If Clients Table Overflow messages are encountered with the ASCII terminal or Configware, the session table size is too small for the application. This table size can be increased in the *Device Tuning* window of FireProof. The Client Table size by default is 8192. This can be increased to higher numbers to accommodate different applications. If FireProof has 4MB of memory, this setting can be as high as 32,000. If it has 8MB, the setting can be as high as 100,000. Other table sizes may need to be lowered in order to accommodate the larger Client Table sizes.

- Ensure that the router of each firewall to the local network is the physical IP address assigned to FireProof.

- Ensure that the local network can access the Internet. The default router of the local network must always the internal IP address of the FireProof.

- To ensure that FireProof can access the Internet, the default router of FireProof must always be one of the firewalls, or the router for an external FireProof. This can be done by adding an entry to the FireProof routing table with destination IP network and mask set to 0.0.0.0 with the next hop as the IP address one of the firewalls. This can also be done via the ASCII terminal during initial IP address configuration.

- When working in Regular VLAN mode, the firewall configuration does not need to be changed, only the client's configuration, so that the FireProof can act as their default gateway and not the firewalls.

- When operating two redundant FireProof units, make sure the redundancy is enabled for the backup FireProof (under Router-IP Router-Operating Parameters), that the redundant interfaces are configured in the redundancy table (under Router-IP Router-IP Redundancy), and that the interface grouping is enabled on the main FireProof (under FireProof - Global Configuration).

- FireProof will not work when a client and a firewall reside on the same subnet and on the same side of the FireProof. In this case, the firewall will respond to the client directly (because it doesn't need the FireProof to route it to the client). The FireProof will not be able to load balance the packets.
- When firewalls work with the Network Address Translation (NAT) feature enabled, FireProof must reside on the inner (secured) side of the firewalls. When firewalls work without the Network Address Translation feature (the feature is disable), two FireProofs have to be installed: one on each side of the firewalls, or port connection rules must be defined to separate internal and external ports. If NAT is disabled then FireProof is needed to direct the packets to the firewalls they came from, whereas when NAT is enabled the packet is sent directly to the firewalls.
- When physically replacing the firewall or its network card, first remove the old firewall entry from the Arp table. This can be done using the Router-IP Router- ARP Table option. Doing so will prevent confusion if the old firewall IP address is used with another network card.
- As long as a firewall is configured as a router or default router, it cannot be removed from the firewall table. This limitation is set to ensure that routing to the Internet will always be available. It is important that one of the firewalls be configured as a default router to the Internet, or as a next hop router to the clients subnet, as in the case of an external FireProof.

  Note: Once a firewall is no longer a router, it can be deleted.

APPENDIX C

ASCII Command Line Interface

Configuration of the FireProof may be completed using several different types of applications, such as Configware, refer to Chapter 3, *Configuring FireProof*, and the ASCII CLI, described in this appendix.

The Configware management software is user-friendly, ideal for on site configuration and for users accustomed to windows based software, but some users may simply prefer to configure the system through a command line.

This Appendix defines the commands for the FireProof's ASCII CLI, in alphabetical order and refers the user to previous chapters for more information, as these commands are identical to those described previously in the Configware chapter.

The CLI is password protected therefore:

- **Hyper-Terminal Connection:** Using this type of connection the first command must be the Password command, once the password is correctly entered all other commands will be accessible.
- **Telnet:** Using this type of connection the first command must be the **Logon** command, once logon has been performed successfully the Telnet CLI commands will be accessible.

An initial hyper-terminal and Telnet password is provided with the FireProof and this should be changed upon first time configuration.

Command Formats General Description

Each CLI command consists of the following arguments:

- Get: Retrieves the required data.
- Update: Changes the specified data.
- Destroy/Delete: Deletes the specified data (this argument may not be available for all commands).
- Create/Add: Creates a new data entry (this argument may not be available for all commands).
- Help: Displays all available arguments, including Switches and Switch values, see page C-3.

CLI Commands that contain status fields may be updated with the following:

- **1:** This value is equal to Enable
- **2:** This value is equal to Disable
- **enable**
- **disable**

The syntax of each command for the CLI consists of the following:

1. Command Text: The text syntax for each command, for example, **arp get**.
2. Optional Fields: These fields may be added to select a specific item, for example, *arp get* **[interface] [net address]**. These fields will appear in this appendix with [ ], if these fields are not added the command will display all available items in a table format.

3. Mandatory Fields: Fields that must be added to a command, for example *arp update* **<interface> <net address> <physical address>**. These commands will appear in this appendix with < >, if these fields are not added the command will not function and an error message will be displayed.
4. Switch: These fields define a specific action within the command, and must be one of the values displayed in the general description section of each command and must be followed with a value for the switch, for example, *alias update* **<alias address> <Switch><Value>**.
5. Switch Values: These values relate to a specific switch and are individual to each command and switch. Typing the help command and switch to view the allowed values for the specified switch, for example, alias **help -s**.

Console Key Definitions

Cursor Movement keys

- Left Arrow: Move cursor left
- Right Arrow: Move cursor right
- Home: Move cursor to the beginning of the line
- End: Move cursor to the end of the line

History Lines Retrieve keys

- Up Arrow: Move cursor to the previous line
- Down Arrow: Move cursor to the next line
- Character Set + Up Arrow: Move cursor to the previous line which fits the character set defined
- Character Set + Down Arrow: Move cursor to the next line which fits the character set defined

Selection and Clipboard keys

- Control + R: Select right of the cursor
- Control + L: Select left of the cursor
- Control + C: Copy
- Control + X: Cut
- Control + V: Paste

Console Halt:

- ESC-ESC: Abort printing (Not enabled for Telnet)
- CTRL + D: Abort Printing (Not enabled for Telnet)

Note: Boot 2.2 is required in order to support the following functionality:

- Up and down arrow keys which display the history of the CLI.
- The ESC key now enables you to stop table printing.

Application Aging

This group of commands enables the user to manipulate the data of the Application Aging Time Table. For more information refer to *Configuring Application Aging*, in Chapter 3, *Configuring FireProof*, page 3-32.

Command / Syntax	Description
application aging get `appl aging get [application port]`	Enables the user to retrieve information about an existing application aging entry. Example: `appl aging get 1`
application aging update `appl aging update <application port> <aging time>`	Enables the user to update the information about an existing application aging entry. Example: `appl aging update 1 10`
application aging destroy `appl aging destroy <application port>`	Enables the user to delete a specific application aging entry. Example: `appl aging destroy 1`
application aging create `appl aging create <application port> <aging time>`	Enables the user to create a new application aging entry. Example: `appl aging create 1 100`

ARP

This group of commands enables the user to manipulate the data of the ARP Table. For more information refer to *ARP Addresses*, in Chapter 3, *Configuring FireProof*, page 3-69.

Command / Syntax	Description

arp get
`arp get`
`[interface]`
`[Net address]`
	Enables the user to retrieve information an existing arp entry.
	Example: `arp get 1 176.200.1.1`

arp destroy
`arp destroy`
`<interface>`
`<Net address>`
	Enables the user to delete a specific arp entry.
	Example: `arp destroy 1 176.200.1.1`

arp create
`arp create`
`<interface>`
`<Net address>`
`<Physical Address>`
	Enables the user to create a new arp entry.
	Example: `arp create 1 176.200.1.1 00d0b76b1242`

arp help list `arp help`	Opens an online help for arp tables. Example: `arp help`

Bandwidth Management

This group of commands enables the user to manipulate the Bandwidth Management data. Entering the `bwm` command will display the following options:

- **Network**
- **Policy**
- **Service**
- **Utils**

(BWM) Diffserv

This group of commands enables the user to manipulate the data of the BWM Diffserv.
Entering the bwm diffserv dscp command will display the following options:

- **actual**
- **temp**

Note: The possible Switch Values for the bwm network temp command are the following:

- **-pr:** priority
- **-bw:** bandwidth

Command / Syntax	Description
BWM Diffserv DSCP actual get `bwm diffserv dscp actual get [<index>]`	Displays the DSCP Actual Table. Example: `bwm diffserv dscp actual get 4`
BWM Diffserv DSCP temp get `bwm diffserv dscp temp get [<index>]`	Enables the user to retrieve information from the DSCP Temporary Table. Example: `bwm diffserv dscp temp get 4`
BWM Diffserv DSCP temp update `bwm diffserv dscp temp update <index>`	Enables the user to update information for an existing DSCP Temporary Table. Example: `bwm diffserv dscp temp update 4`

(BWM) Network

This group of commands enables the user to manipulate the data of the BWM Network. Entering the bwm Network command will display the following options:

- **actual**
- **temp**

Note: The possible Switch Values for the bwm network temp command are the following:

- **-a:** IP
- **-s:** Mask
- **-t:** To Ip
- **-m:** Mode
- **-f:** From IP

Command / Syntax	Description
BWM Network actual get `bwm network actual get`	Displays the Rule Networks Table. Example: `bwm network actual get`
BWM Network temp get `bwm network temp get [name] [index]`	Enables the user to retrieve information from the Temporary Network Table. Example: `bwm network temp get radware 0`
BWM Network temp update `bwm network temp update <name><index> <switch><value>`	Enables the user to update information for an existing BWM temporary network table. Example: `bwm network temp update radware 0 -a 176.100.0.0 -s 255.255.0.0`
BWM Network temp destroy `bwm network temp destroy <name><index>`	Enables the user to delete an existing BWM temporary network table. Example: `bwm network temp destroy radware 0`

(BWM) Network

Command / Syntax	Description
BWM Network temp create `bwm network temp create <name><index> <switch><value>`	Enables the user to create a new BWM temporary network table. Example: bwm network temp create radware 0 `-a 176.0.0.0 -s 255.0.0.0 -m ipMode`

(BWM) Policy

This group of commands enables the user to manipulate the data of the BWM policy.
Entering the Policy command will display the following options:

- **actual:**
- **temp:**

Note: The possible Switch Values for the temp command are the following:

- **-i:** Index
- **-ds:** Destination
- **-s:** Source
- **-ac:** Action
- **-dr:** Direction
- **-pr:** Priority
- **-po:** Physical Port
- **-t:** Type
- **-de:** Description
- **-bw:** Bandwidth
- **-pt:** Policy Type
- **-p:** Policy
- **-os:** Operational Status

Command / Syntax	Description
BWM Policy actual get `actual get`	Displays the Policy Table. Example: `bwm policy actual get`
BWM Policy temp get `temp get [name]`	Enables the user to retrieve information for an existing BWM temporary policy table. Example: `bwm policy temp get httpPolicy`

(BWM) Policy

Command / Syntax	Description
BWM Policy temp update `temp update <name> [<switch><value>]`	Enables the user to update information for an existing BWM temporary policy table. Example: `bwm policy temp update httpPolicy -bw 500`
BWM Policy temp destroy `temp destroy <name><index>`	Enables the user to delete an existing BWM temporary policy table. Example: `bwm policy temp destroy httpPolicy`
BWM Policy temp create `temp create <name> -ds <destination> -s <source> -i <index> <switch><value>`	Enables the user to create a new BWM temporary policy table. Example: `bwm policy temp create httpPolicy -i 2 -ds any -s any -pt filter -p http -bw 200`

(BWM) Service

This group of commands enables the user to manipulate the data of the BWM service.
Entering the `bwm` service command will display the following options:

- **Adv:** The possible Switch Values for the bwm Service adv command are the following:
  - -t: Type
- **Basic:** The possible Switch Values for the bwm service basic command are the following:
  - -p: Protocol
  - -dp: Destination Port
  - -f: Source From
  - -to: Source To
  - -o: Offset
  - -om: Mask
  - -op: Pattern
  - -oc: Condition
  - -ol: Length
  - -co: C Offset
  - -cd: Data
  - -ct: Data Type
  - -t: Type
- **Group:** The possible Switch Values for the bwm service group command are the following:
  - -t: Type

Command / Syntax	Description
BWM service advanced actual get `bwm service adv actual get`	Displays the Advanced Filter table. Example: `bwm service adv actual get`
BWM service advanced temp get `bwm service adv temp get [adv] [filter]`	Displays the Temporary Advanced Filter table. Example: `bwm service adv temp get`

(BWM) Service

Command / Syntax	Description
BWM service advanced temp update `bwm service adv temp update <adv><filter> [<switch><value>]`	Enables the user to update information for an existing BWM temporary policy table. Example: `bwm service adv temp update local cmpc1 -t filter`
BWM service advanced temp destroy `bwm service adv temp destroy <adv><filter>`	Enables the user to delete an existing BWM temporary policy table. Example: `bwm service adv temp destroy local ompc1`
BWM service advanced temp create `bwm service adv temp create <adv><filter> [<switch><value>]`	Enables the user to create a new BWM temporary policy table. Example: `bwm service adv temp create local ompc2`
BWM service basic actual get `bwm service basic actual get`	Enables the user to retrieve information for the BWM Service Basic Filter Table. Example: `bwm service basic actual get`
BWM service basic temp get `bwm service basic temp get [name]`	Enables the user to retrieve information for an existing entry in the BWM Temporary Basic Filter Table. Example: `bwm service basic temp get http`

(BWM) Service

Command / Syntax	Description
BWM service basic temp update `bwm service basic temp update <name> <switch><value>`	Enables the user to update information for an existing entry in the BWM Temporary Basic Filter Table. Example: `bwm service basic temp update http -f 80`
BWM service basic temp destroy `bwm service basic temp destroy <name>`	Enables the user to delete an existing entry in the BWM Temporary Basic Filter Table. Example: `bwm service basic temp destroy http`
BWM srvice basic temp create `bwm service basic temp create <name> <switch><value>`	Enables the user to create a new entry for the BWM Temporary Basic Filter Table. Example: `bwm service basic temp create http -to 81`
BWM service group actual get `bwm service group actual get`	Enables the user to retrieve information for an existing BWM Group Table. Example: `bwm service group actual get`
BWM service group temp get `bwm service group temp get [<group><entry>]`	Enables the user to retrieve information for an existing BWM Temporary BWM Group Table. Example: `bwm service group temp get any 7`

(BWM) Service

Command / Syntax	Description
BWM service group temp update `bwm service group temp update <group><entry> [<switch><value>]`	Enables the user to update information for an existing BWM Temporary BWM Group Table. Example: `bwm service group temp get any 7 -t regular`
BWM service group temp destroy `bwm service group temp destroy <group><entry>`	Enables the user to delete information from an existing BWM Temporary BWM Group Table. Example: `bwm service group temp get any 7`
BWM service group temp create `bwm service group temp create <group><entry> -t <value>`	Enables the user to create an entry for the BWM Temporary BWM Group Table. Example: `bwm service group temp get any 7 -t static`

(BWM) Utilization

This group of commands enables the user to manipulate the data of the BWM utilization. Entering the `Utils` command will display the following options:

- **Action**
- **Application**
- **CBQ**
- **Classify**
- **Ports:** The possible Switch Values for the bwm utils ports command are the following:
  - -bw: Bandwidth Allocated
- **Priority**
- **Red**

Command / Syntax	Description
BWM utils action get `action get`	Enables the user to retrieve information for existing BWM actions. Example: `bwm utils action get`
BWM utils action update `action update <action: updaterules(1)>`	Enables the user to update information for an existing BWM action. Example: `bwm utils action update 2`
BWM utils application mode get `appl mode get`	Enables the user to retrieve the BWM application modes. Example: `bwm utils appl mode get`
BWM utils application mode update `appl mode update <application classify mode>`	Enables the user to update the BWM application mode. Example: `bwm utils appl mode update enable`

(BWM) Utilization

Command / Syntax	Description
BWM utils CBQ mode get `cbq mode get`	Enables the user to view the BWM CBQ mode. Example: `bwm utils cbq get`
BWM utils CBQ mode update `cbq mode update <cbq mode>`	Enables the user to update the BWM CBQ mode. CBQ mode values may be one of the following: • Cyclic: (1) • CBQ: (2) Example: `bwm utils cbq mode update 1`
BWM utils CBQ borrow get `cbq borrow get`	Enables the user to view the BWM CBQ borrow mode. Example: `bwm utils cbq borrow get`
BWM utils CBQ borrow update `cbq borrow update <cbq borrow mode>`	Enables the user to update the BWM CBQ borrow mode. Example: `bwm utils cbq borrow update enable`
BWM utils classification mode get `classify get`	Enables the user to view the BWM classification mode. Example: `bwm utils classify get`
BWM utils classification mode update `classify update <classification mode>`	Enables the user to update the BWM classification mode. Example: `bwm utils classify update disable`

(BWM) Utilization

Command / Syntax	Description
BWM utils ports get `ports get <index>`	Enables the user to view the BWM maximum port bandwidth. Example: `bwm utils ports get 1`
BWM utils ports update `ports update <index><switch><value>`	Enables the user to update the BWM maximum port bandwidth. Example: `bwm utils ports update 1 -bw 2400`
BWM utils priority get `priority get`	Enables the user to view the BWM priority details. Example: `bwm utils priority get`
BWM utils RED info get `red info get`	Enables the user to view the BWM RED Queue Table. Example: `bwm utils info get`
BWM utils RED mode get `red mode get`	Enables the user to view the BWM RED mode. Example: `bwm utils mode get`
BWM utils RED mode update `ports update <RED mode>`	Enables the user to update the BWM RED mode. Example: `bwm utils mode update global`

Client

This command enables the user to view the RS Client Table information. For more details, refer to *Viewing Active Clients*, in Chapter 3, *Configuring FireProof*, page 3-40.

Command / Syntax	Description
client get `client get`	Enables the user to view the RS Client table. Example: `client get`

DRV

This group of commands enables the user to manipulate the driver's parameters.
Entering the `drv` command will display the following options:

- **Get**
- **Set**

Command / Syntax	Description
DRV get auto `drv get auto [port]`	Enables the user to retrieve the Driver Auto status. Example: `drv get auto 1`
DRV get duplex `drv get duplex <port>`	Enables the user to retrieve the DRV Duplex status. Example: `drv get duplex 1`
DRV get speed `drv get speed <port>`	Enables the user to retrieve the DRV Speed value. Example: `drv get speed 1`

DRV

Command / Syntax	Description
DRV set auto `drv set auto <port><auto>`	Enables the user to set the DRV Auto status. The values for the auto parameter may be one of the following: • Enable • Disable • Restart Example: `drv set auto 1 disable`
DRV set duplex `drv set duplex <port><duplex>`	Enables the user to set the DRV Duplex status. The values for the duplex parameter may be one of the following: • Full • Half Example: `drv set duplex 1 full`
DRV set speed `drv set speed <port><speed>`	Enables the user to set the DRV Speed value. The values for the speed parameter may be one of the following: • 10 • 100 • 1000 Example: `drv set speed 1 1000`

Firewall

This group of commands enables the user to manipulate or view the data of the Firewall Table. For more information refer to *Configuring Firewall Grouping*, in Chapter 3, *Configuring FireProof*, page 3-34.
The possible Switch Values for the Farm command are the following:

- -n: Firewall Name
- -w: Firewall Weight
- -m: Firewall Operation Mode
- -l: Firewall Connection Limit
- -a: Firewall Admin Status
- -t: Firewall Type
- -r: Recovery Time
- -u: Warm Up Time
- -p

Command / Syntax	Description
firewall get `firewall get [firewall address]`	Enables the user the retrieve information for a specific firewall. Example: `firewall get 1.1.1.1`
firewall update `firewall update <firewall address> <switch><value>`	Enables the user to update the information of an existing firewall. Example: `firewall update 1.1.1.1 -n "one"`
firewall destroy `firewall destroy <firewall address>`	Enables the user to delete an existing firewall. Example: `firewall destroy 1.1.1.1`
firewall create `firewall create <firewall address> <switch><value>`	Enables the user to create a new firewall. Example: `firewall create 1.1.1.1 -w 5`

Firewall

Command / Syntax	Description
firewall switch help list `firewall help <switch>`	Opens an online help for firewalls. Example: `firewall help -m`

Global

This group of commands enables the user to manipulate or view the global parameters. For more information refer to *Global Configuration*, in Chapter 3, page 3-41.

Entering the `global` command will display the following options:

- admstts: Admin Status
- clntage: Client's Life Time
- clntmode: Client Table Mode
- conchk: Check Connectivity
- data
- dspmeth: Dispatch Method
- fwportid: Identify Firewall by Port
- mapmode: Outbound Translation Mode
- newentry: New Entry on Source Port
- porthash: Include Source and Destination Port on Client Table Hashing
- remsess: Remove Entry at Session End
- sestrack: Session Tracking
- slctfw: Select Firewall on Source Port
- vrem: Virtual Remote

Global

Command / Syntax	Description
global admin status get `global admstts get`	Enables the user to view the global administration status. Example: `global admstts get`
global admin status update `global admstts update <admin status>`	Enables the user to change the global administration status. Example: `global admstts update enable`
global client's life time get `global clntage get`	Enables the user to view the global client's lifetime. Example: `global clntage get`
global client's life time update `global clntage update <client life time>`	Enables the user to change the global client's lifetime. Example: `global clntage update 60`
global client table mode get `global clntmode get`	Enables the user to view the global Client Table Mode. Example: `global clntmode get`
global client table mode update `global clntmode update <client table mode>`	Enables the user to change the global Client Table Mode. Example: `global clntmode update layer3`

Global Connectivity Check

This group of commands enables the user to manipulate or view the global connectivity check parameters. For more information refer to *Global Configuration*, in Chapter 3, page 3-41.
Entering the `global conchk` command will display the following options:

- interval
- method
- retries
- status

Command / Syntax	Description
global connectivity check interval get `global conchk interval get`	Enables the user to view the global Connectivity Check Interval. Example: `global conchk interval get`
global connectivity check interval update `global conchk interval update <check connectivity Interval>`	Enables the user to change the global Connectivity Check Interval. Example: `global conchk interval update 10`
global connectivity check method get `global conchk method get`	Enables the user to view the global Connectivity Check Method. The values for the check connectivity mode field are the following: • 1 - Ping • x - TCP Port Example: `global conchk method get`

Global Connectivity Check

Command / Syntax	Description
global connectivity check method update `global conchk method update <check connectivity mode>`	Enables the user to change the Global Connectivity Check Method. Example: `global conchk method update 1`
global connectivity check retries get `global conchk retries get`	Enables the user to view the global Connectivity Check Retries. Example: `global conchk retries get`
global connectivity check retries update `global conchk retries update <check connectivity retries>`	Enables the user to change the global Connectivity Check Retries. Example: `global conchk retries update 5`
global connectivity check status get `global conchk status get`	Enables the user to view the global Connectivity Check Status. The values for the check connectivity status field are the following: • 1 - Enable • 2 - Disable Example: `global conchk status get`

Global Connectivity Check

Command / Syntax	Description
global connectivity check status update `global conchk status update <check connectivity status>`	Enables the user to change the global Connectivity Check Status. Example: `global conchk status update 1`

Global Data

Command / Syntax	Description
global data get `global data get`	Enables the user to view the Global Fireproof Table. Example: `global data get`

Global Dispatch Method

Command / Syntax	Description
global dispatch method get `global dspmeth get`	Enables the user to view the global Dispatch Method. The values for the dispatch method field are the following: • 1 - Cyclic • 2 - Least Traffic • 3 - Least Users Number • 4 - nt-1 • 5 - nt-2 • 6 - private-1 • 7 - private-2 • 8 - LeastBytes Example: `global dspmeth get`
global dispatch method update `global dspmeth update <dispatch method>`	Enables the user to change the global Dispatch Method. Example: `global dspmeth update 2`

Global Identify Firewall by Port

Command / Syntax	Description
global identify firewall by port get `global fwportid get`	Enables the user to view the global Identify Firewall by Port data. The values for the status field are the following: • 1 - Enable • 2 - Disable Example: `global fwportid get`
global identify firewall by port update `global fwportid update <status>`	Enables the user to change the global Identify Firewall by Port data. Example: `global fwportid update 2`

Global Outbound Translation Mode

Command / Syntax	Description
global outbound translation mode get `global fwportid get`	Enables the user to view the global Outbound Translation Mode. The values for the translate outbound traffic to virtual address field are the following: • 1 - Enable • 2 - Disable Example: `global fwportid get`
global outbound translation mode update `global fwportid update <translate outbound traffic to virtual address>`	Enables the user to change the global Outbound Translation Mode. Example: `global fwportid update 2`

Global New Entry on Source Port

Command / Syntax	Description
global new entry on source port get `global newentry get`	Enables the user to view the global New Entry on Source Port status. The values for the value field are the following: • 1 - Enable • 2 - Disable Example: `global fwportid get`
global new entry on source port update `global newentry update <value>`	Enables the user to change the global New Entry on Source Port status. Example: `global fwportid update 2`

Global Include Source and Destination Port on Client Table Hashing

Command / Syntax	Description
global include source and destination port on client table hashing get `global porthash get`	Enables the user to view the global Include Source and Destination Port on Client Table Hashing status. The values for the value field are the following: • 1 - Enable • 2 - Disable Example: `global porthash get`
global include source and destination port on client table hashing update `global porthash update <value>`	Enables the user to change the global Include Source and Destination Port on Client Table Hashing status. Example: `global porthash update 2`

Global Remove Entry at Session End

Command / Syntax	Description
global remove entry at session end get `global remsess get`	Enables the user to view the global Remove Entry at Session End status. The values for the value field are the following: • 1 - Enable • 2 - Disable Example: `global remsess get`
global remove entry at session end update `global remsess update <value>`	Enables the user to change the global Remove Entry at Session End status. Example: `global remsess update 2`

Global Session Tracking

Command / Syntax	Description
global session tracking get `global sestrack get`	Enables the user to view the global Session Tracking status. The values for the session tracking field are the following: • 1 - Enable • 2 - Disable Example: `global sestrack get`
global session tracking update `global sestrack update <session tracking>`	Enables the user to change the global Session Tracking status. Example: `global sestrack update 2`

Global Select Firewall on Source Port

Command / Syntax	Description
global select firewall on source port get `global slctfw get`	Enables the user to view the global Select Firewall on Source Port status. The values for the value field are the following: • 1 - Enable • 2 - Disable Example: `global sestrack get`
global select firewall on source port update `global slctfw update <value>`	Enables the user to change the global Select Firewall on Source Port status. Example: `global slctfw update 2`

Global Virtual Remote

This group of commands enables the user to manipulate or view the global virtual remote data.

Entering the `global vrem` command will display the following options:

- address
- mode

Command / Syntax	Description
global virtual remote address get `global vrem address get`	Enables the user to view the global virtual remote address. Example: `global vrem address get`
global virtual remote address update `global vrem address update <virtual remote address>`	Enables the user to view the global virtual remote address. Example: `global vrem address update 1.1.1.1`
global virtual remote mode get `global vrem mode get`	Enables the user to view the global virtual remote address. The values for the virtual remote status field are the following: • 1 - Enable • 2 - Disable Example: `global vrem address get`
global virtual remote mode update `global vrem mode update <virtual remote status>`	Enables the user to view the global virtual remote address. Example: `global vrem address update 1.1.1.1`

Group

This group of commands enables the user to manipulate or view the group parameters. For more information refer to *Configuring Firewall Grouping*, in Chapter 3, page 3-34.
Entering the `group` command will display the following options:

- applport: Application Port Group Table
- dest: Destination Subnet Group Table
- source: Source Subnet Group Table

The possible switches for the group commands are the following:

- -o: Operation Mode

Command / Syntax	Description
application port group table get `group applport get [application port or other] [firewall ip address]`	Enables the user to view the Application Port Group Table. Example: `group applport get 1 1.1.1.1`
application port group table update `group applport update <application port or other> <firewall ip address>`	Enables the user to update an Application Port Group Table entry. Example: `group applport update 1 1.1.1.1`
application port group table destroy `group applport destroy <application port or other> <firewall ip address>`	Enables the user to delete an Application Port Group Table entry. Example: `group applport destroy 1 1.1.1.1`

Group

Command / Syntax	Description
application port group table create `group applport create <application port or other> <firewall ip address>`	Enables the user to create an Application Port Group Table entry. Example: `group applport create 1 1.1.1.1`
destination subnet group table get `group dest get [subnet IP adress] [firewall ip address]`	Enables the user to view the Destination Subnet Group Table. Example: `group dest get 2.2.2.2 1.1.1.1`
destination subnet group table update `group dest update <dest subnet address> <subnet mask> <firewall ip address>`	Enables the user to update a Destination Subnet Group Table entry. Example: `group dest update 2.2.2.2 255.0.0.0 1.1.1.1`
destination subnet group table destroy `group dest destroy <dest subnet address> <subnet mask> <firewall ip address>`	Enables the user to delete a Destination Subnet Group Table entry. Example: `group dest destroy 2.2.2.2 255.0.0.0 1.1.1.1`

Group

Command / Syntax	Description
destination subnet group table create `group dest create <dest subnet address> <subnet mask> <firewall ip address>`	Enables the user to delete a Destination Subnet Group Table entry. Example: `group dest create 2.2.2.2 255.0.0.0 1.1.1.1`
destination subnet group table get `group source get [source subnet IP adress] [source mask] [firewall ip address]`	Enables the user to view the Source Subnet Group Table. Example: `group source get 2.2.2.2 255.0.0.0 1.1.1.1`
destination subnet group table update `group source update <source subnet address> <source mask> <firewall ip address>`	Enables the user to update a Source Subnet Group Table entry. Example: `group source update 2.2.2.2 255.0.0.0 1.1.1.1`
source subnet group table destroy `group source source destroy <source subnet address> <source mask> <firewall ip address>`	Enables the user to delete a Source Subnet Group Table entry. Example: `group source source destroy 2.2.2.2 255.0.0.0 1.1.1.1`

Group

Command / Syntax	Description
source subnet group table create `group source create <source subnet address> <source mask> <firewall ip address>`	Enables the user to create a Source Subnet Group Table entry. Example: `group source create 2.2.2.2 255.0.0.0 1.1.1.1`

IDS

This group of commands enables the user to manipulate the Intruder Detection Service, for more information refer to *Setting Up Application Security*, on page 3-87.
Entering the `ids` command will display the following options:

- Ncpaging
- Ncpdsize
- Ncpsdsiz
- Policy
- Stats
- Statsize
- Stattime
- Status
- Tcpaging
- Tcpsize
- Track: The switch values for this command are the following:
  - -tti: Tracking Time in MS
  - -ts: Threshold
  - -o: Object Type
  - -tty: Tracking Type
- Traps

Command / Syntax	Description
IDS ncpaging get `ids ncpaging get`	Enables the user to view the Ids NCP Aging frequency. Example: `ids ncpaging get`
IDS ncpaging update `ids ncpaging update <value>`	Enables the user to update the Ids NCP Aging frequency. Example: `ids ncpaging update 1000`

IDS

Command / Syntax	Description
IDS ncpdsize get `ids ncpdsize get`	Enables the user to view the Ids NCPD Size. Example: `ids ncpdsize get`
IDS ncpdsize update `ids ncpdsize update <value>`	Enables the user to update the Ids NCPD Size. Example: `ids ncpdsize update 8250`
IDS policy get `ids policy <policy name> get`	This group of commands enables the user to view the Intruder Detection Service Policies. Entering the **`ids policy`** command will display the following options for the policy name field: • Any: Any Policy • Apache: Apache Policy • Basic: Basic Policy • Bdoors: Backdoors • Coldfus: Cold Fusion • Compaq: Compaq Policy • Front: Front Policy • Irix: Irix Policy • Lotus: Lotus Policy • Msiis: MMSIIS • Ncsa: NCSA Policy • Netscape: Netscape Policy • Novell: Novell Policy • Omni: Omni Policy • Oracle: Oracle Policy • Unix: Unix Policy • Website: Website Policy Example: `ids policy any get`

IDS

Command / Syntax	Description
IDS policy update `ids policy <policy name> update <status>`	This group of commands enables the user to update the Intruder Detection Service Policies status. Example: `ids policy unix update enable`
IDS statistics get `ids stats get`	Enables the user to view the IDS Statistics Table. Example: `ids stats get`
IDS statsize get `ids statsize get`	Enables the user to view the IDS Statistics Table's Size. Example: `ids statsize get`
IDS statsize update `ids statsize update <value>`	Enables the user to update the IDS Statistics Table's Size. Example: `ids statsize update 1000`
IDS stattime get `ids stattime get`	Enables the user to view the IDS Statistics Table's Time. Example: `ids stattime get`
IDS stattime update `ids stattime update <value>`	Enables the user to update the IDS Statistics Table's Time. Example: `ids stattime update 1000`
IDS status get `ids status get`	Enables the user to view the IDS Status. Example: `ids status get`

IDS

Command / Syntax	Description
IDS status update `ids status update <status>`	Enables the user to update the Ids Status. Example: `ids status update enable`
IDS tcpaging get `ids tcpaging get`	Enables the user to view the IDS TCP Aging frequency. Example: `ids tcpaging get`
IDS tcpaging update `ids tcpaging update <value>`	Enables the user to update the IDS TCP Aging frequency. Example: `ids tcpaging update 1000`
IDS tcpdsize get `ids tcpsize get`	Enables the user to view the IDS TCP Size. Example: `ids tcpsize get`
IDS tcpdsize update `ids tcpsize update <value>`	Enables the user to update the IDS TCP Size. Example: `ids tcpsize update 64000`
IDS track get `ids track get [filter/group name]`	Enables the user to view the IDS Tracking Table. Example: `ids track get F-ICMP`
IDS track create `ids track create <name><switch> <value>`	Enables the user to create a new IDS Tracking Table entry. Example: `ids track create F-ICMP -tti 10`

IDS

Command / Syntax	Description
IDS track update `ids track update <name><switch> <value>`	Enables the user to update a specific IDS Tracking Table entry. Example: `ids track update F-ICMP -tti 5`
IDS track destroy `ids track destroy <name>`	Enables the user to delete a specific entry in the IDS Tracking Table. Example: `ids track destroy F-ICMP`
IDS traps get `ids traps get`	Enables the user to view the IDS Traps status. Example: `ids traps get`
IDS traps update `ids traps update <status>`	Enables the user to update the IDS Traps status. Example: `ids traps update enable`

INF

This group of commands enables the user to manipulate the data of the Interface Table. For more information, refer to *Setting Up Interface Addresses and IP Router Options*, in Chapter 3, page 3-16.

Command / Syntax	Description

INF get
`inf get`
`[interface address]`
	Enables the user to view an existing Interface.
	Example: `inf get 1.1.1.1`

INF update
`inf update`
`<interface address>`
`<network mask><IF num>`
	Enables the user to update/change an existing Interface.
	Example: `inf update 1.1.1.1`
	`255.0.0.0 1`

INF destroy
`inf destroy`
`<interface address>`
	Enables the user to delete an existing Interface.
	Example: `inf destroy 1.1.1.1`

INF create
`inf create/add`
`<interface address>`
`<network mask><IF num>`
	Enables the user to create a new Interface.
	Example: `inf create 1.1.1.1`
	`255.0.0.0 2`

License Commands

This group of commands enables the user to view or change the device's license number.

Command / Syntax	Description
license get `license get`	Enables the user to view the device's license number. Example: `license get`
license set `license set <value>`	Enables the user to update/change the device's license number. Example: `license set fp-synapps-DeghjyGS`

Login/Logout Commands

Command / Syntax	Description
login `login <password>`	Enables the user to Login to the FireProof Command Line Interface Example: `Login` **`Password`** `: fp`
logout `logout`	Logs the user out of the CLI. Example: `Logout`

Password

Enables the user to set a new Login password.
Example: `passwd`
`Enter: Old Password`
`Enter: New Password`
`Repeat: New Password`

One Trap

Enables the user to use the One Trap command to view or change the server status. For more information refer to *Configuring One Trap*, in Chapter 3, page 3-88.

Command / Syntax	Description
one trap get `onetrap get`	Enables the user to view the One Trap status. Example: `onetrap get`
one trap update `onetrap update <value>`	Enables the user to update/change the One Trap status.Example: `onetrap update disable`

Ping

This group of commands enables the user to configure the ping setup.
The syntax for the Ping command is as follows:
`Ping [-s] [-t] [-n count] [-l size] [-w timeout] Destination IP Address`
The possible options for the **ping** command are the following:

- **-s:** Stops the pings
- **-t:** Pings to the specified host until interrupted
- **-n count:** The number of echo requests to send. Enter the required number in the <count>. The default is: 1, maximum is: 65535.
- **-l size:** The Sent Data size. . Enter the required number in the <size>. The default is: 10, maximum is: 1450.
- **-w timeout:** The time in milliseconds to wait for each reply. The default is: 1000.

Print

This command enables the user to print all the available FireProof data to the CLI screen although most of this data may be displayed by other commands in the CLI.

Note: This section does not contain all the available print commands. To display the list of additional print commands type print in the CLI.

Typing the `print` command displays the following menu items:

Syntax	Description
`print brg`	This command enables the user to print the Bridge data to the CLI screen.
`print devinfo`	This command enables the user to print the Device Information to the CLI screen.
`print ip`	This command enables the user to print the IP data to the CLI screen. Typing the `print ip` command displays the following submenu items: • **arp:** Typing the `print ip arp` command displays an additional sub menu enabling the user to print the following: ❖ **tbl:** Prints the IP ARP table ❖ **wl:** Prints the ARP wait list • **cnt:** Typing the `print ip cnt` command displays the IP Counters. • **fp:** • **frw:** Typing the `print ip frw` command displays the IP Routing table.

Print

Syntax	Description
`print ip` *(continued)*	• **icmp:** Typing the `print ip icmp` command displays an additional sub menu enabling the user to print the following: ❖ **cnt:** Prints the IP ICMP counters • **inf:** Typing the `print ip inf` command displays the IP Address table. • **rd:** Typing the `print ip rd` command displays the IP Redundancy table. • **rip:** Typing the `print ip rip` command displays an additional sub menu enabling the user to print the following: ❖ **conf:** Prints the IP Interface table
`print l2`	This command enables the user to print the l2 data to the CLI screen. Typing the `print l2` command displays the following submenu items: • **inf:** Typing the `print l2` inf command displays the l2 Interface table
`print logfile`	This command enables the user to print the Logfile data to the CLI screen.
`print os`	This command enables the user to print the Device data to the CLI screen. Typing the `print os` command displays the following submenu items: • **resource:** Typing the `print os resource` command displays the Device Resource Utilization table.

Print

Syntax	Description
`print rea`	This command enables the user to print the REA data to the CLI screen. Typing the `print rea` command displays the following submenu items: • **prx:** Typing the `print rea prx` command displays an additional sub menu enabling the user to print the following: ❖ **alias:** Prints the Farm Alias Entries table. ❖ **dstrnge:** Prints the Destination Ranges table. ❖ **srvrtbl:** Prints the Servers in Farm table.
`print snmp`	This command enables the user to print the SNMP tables to the CLI screen. Typing the `print snmp` command displays the following submenu items: ❖ **commnity:** Prints the SNMP Community table. ❖ **rule:** Prints the SNMP Designated Ports table.
`print swver`	This command enables the user to print the Cache Server Director current software version to the CLI screen.
`print trapecho`	This command enables the user to print the Trap Echo status to the CLI screen.
`print tune`	This command enables the user to print the Tune data to the CLI screen.

Quit

This command enables the user to reboot the system.
To Reboot the system:

1. Type **quit**. The following message is displayed: Are you sure you want to reboot the system? (yes/no):
2. Enter **Yes** or **No** as required.

Redundancy

This group of commands enables the user to manipulate the data of the redundancy tables.
For more information, refer to *Setting Up Redundant FireProof Devices*, in Chapter 3, page 3-43.
Entering the `redun` command will display the following options:

- infgroup: Interface Grouping status
- iprd: Redundancy Table. The possible switch values for this command are the following:
  - -p: Polling Interval
  - -t: Timeout
- mirror: Mirror Tables
- Status: Redundancy Status

Command / Syntax	Description
redundant interface grouping get `redund infgroup get`	Enables the user to view the Redundant Interface Grouping status. Example: `redund infgroup get`
redundant interface grouping update `redund infgroup update <value>`	Enables the user to view the Redundant Interface Grouping status. Example: `redund infgroup update enable`

Redundancy

Command / Syntax	Description

redundancy table get
`redund iprd get`
`[interface address]`
`[main router address]`
	Enables the user to view the Redundancy Table.
	Example: `redund iprd get 1.1.1.1 0.0.0.0`

redundancy table update
`redund iprd update`
`<interface address>`
`< main router address>`
`<switch><value>`
	Enables the user to update/change an entry in the Redundancy Table.
	Example: `redund iprd update 1.1.1.1 0.0.0.0 -t 10`

redundancy table destroy
`redund iprd destroy`
`<interface address>`
`< main router address>`
	Enables the user to delete an entry in the Redundancy Table.
	Example: `redund iprd destroy 1.1.1.1 0.0.0.0`

redundancy table create
`redund iprd create`
`<interface address>`
`< main router address>`
`<switch><value>`
	Enables the user to crea te a new entry in the Redundancy Table.
	Example: `redund iprd create 1.1.1.1 0.0.0.0 -p 5`

Redundant Mirror Table

This group of commands enables the user to manipulate the data of the redundant mirror tables. For more information, refer to *Configuring Mirroring*, in Chapter 3, page 3-49.
Entering the `redund mirror` command will display the following options:

- active
- backup

Command / Syntax	Description
redundant mirror active mode get `redund mirror active mode get`	Enables the user to view the Mirror Protocol Mode status. Example: `redund mirror active mode get`
redundant mirror active mode update `redund mirror active mode update <mirror protocol mode>`	Enables the user to change the Mirror Protocol Mode status. Example: `redund mirror active mode update enable`
redundant mirror active percent get `redund mirror active percent get`	Enables the user to view the Mirror Percentage. Example: redund mirror active percent get
redundant mirror active percent update `redund mirror active percent update <mirror percentage>`	Enables the user to change the Mirror Percentage. Example: `redund mirror active percent update 95`

Redundant Mirror Table

Command / Syntax	Description
redundant mirror active polling get `redund mirror active polling get`	Enables the user to view the Mirror Polling time. Example: `redund mirror active polling get`
redundant mirror active polling update `redund mirror active polling update <mirror polling time>`	Enables the user to change the Mirror Polling time. Example: `redund mirror active polling update 10`
redundant mirror backup status get `redund mirror backup status get`	Enables the user to view the Mirror Backup Status. Example: `redund mirror backup status get`
redundant mirror backup status update `redund mirror backup status update <mirror status>`	Enables the user to change the Mirror Backup Status. Example: `redund mirror backup status update enable`
redundant mirror backup table get `redund mirror backup table get [mirror active address]`	Enables the user to view the Application Mirror Table. Example: `redund mirror backup status get 0.0.0.0`

Redundant Mirror Table

Command / Syntax	Description
redundant mirror backup table destroy `redund mirror backup table destroy <mirror active address>`	Enables the user to delete an entry for the Application Mirror Table. Example: `redund mirror backup status destroy 0.0.0.0`
redundant mirror backup table create `redund mirror backup table create <mirror active address>`	Enables the user to create an entry for the Application Mirror Table. Example: `redund mirror backup status create 0.0.0.0`

Redundancy Status

Command / Syntax	Description
redundancy status get `redund status get`	Enables the user to view the Redundant Admin Status. Example: `redund mirror active mode get`
redundancy status update `redund status update <value>`	Enables the user to change the Redundant Admin Status. Example: `redund status update enable`

Remote

This group of commands enables the user to manipulate the data of the remote connectivity table. For more information, refer to *Configuring a Remote Virtual IP Address*, in Chapter 3, page 3-51.

Command / Syntax	Description

remote get
`remote get`
`[firewall IP]`
`[remote IP address]`
	Enables the user to view the Remote Connectivity table.
	Example: `remote get 1.1.1.1 10.0.0.0`

remote destroy
`remote destroy`
`<firewall IP>`
`<remote IP address>`
	Enables the user to delete an entry in the Remote Connectivity table.
	Example: `remote destroy 1.1.1.1 10.0.0.0`

remote create
`remote create`
`<firewall IP>`
`<remote IP address>`
	Enables the user to create an entry in the Remote Connectivity table.
	Example: `remote create 1.1.1.1 10.0.0.0`

RIP

This group of commands enables the user to manipulate the RIP data. For more information refer to *Configuring Router Settings* in Chapter 3, page 3-55. Entering the ospf command will display the following options:

- **admstts:** Administration Status
- **iftbl:** Interface Table
- **ospf2rip:** Leak OSPF to RIP
- **stat2rip:** Leak Static to RIP

Command / Syntax	Description
RIP admin status get `rip admstts get [admin status]`	Enables the user to view the administration status. Example: `ospf admstts get`
RIP admin status update `rip admstts update <admin status>`	Enables the user to update/change the Administration Status. Example: `ospf admstts update enable`
RIP interface table get `rip iftbl get [rip interface id]`	Enables the user to view the Area Table. Example: `ospf iftbl get 0.0.0.0`

RIP

Command / Syntax	Description
RIP interface table update `rip iftbl update <rip interface id> <switch><value>`	Enables the user to update/change the Area Table. The possible Switch Values for the areatbl command are the following: • -o: Outgoing RIP • -I: Incoming RIP • -m: Default Metric • -d: Virtual Distance • -a: Auto Send Example: `ospf iftbl update 0.0.0.0 -o donotsend`
RIP OSPF to RIP leak get `rip ospf2rip get [leakospf2rip]`	Enables the user to view the RIP OSPF to RIP Leak. Example: `rip ospf2rip get`
RIP direct ext. leak update `rip ext2ospf update <leakospf2rip>`	Enables the user to update/change the RIP OSPF to RIP Leak. Example: `rip ext2ospf update enable`
RIP leak static to Rip get `rip stat2rip get [leak static to rip]`	Enables the user to view the Leak Static to RIP. Example: `rip stat2rip get`
RIP leak static to Rip update `rip stat2rip update <leak static to rip>`	Enables the user to update/change the Leak Static to RIP. Example: `rip stat2rip update enable`

Route

This group of commands enables the user to manipulate the data of the routing table. For more information, refer to *Configuring the Router*, in Chapter 3, page 3-68.
The possible switch values for the `route` command are the following:

- I: Interface Number
- m: Metric 1

Command / Syntax	Description

route get
`route get`
`[destination address]`
`[network mask]`
`[next hop]`
	Enables the user to view the Routing table.
	Example: `route get 1.1.1.1 255.0.0.0 10.0.0.0`

route update
`route update`
`<destination address>`
`<switch><value>`
	Enables the user to update an entry in the Routingtable.
	Example: `route create 1.1.1.1 -I 1`

route destroy
`route destroy`
`<destination address>`
`[network mask]`
`[next hop]`
	Enables the user to delete an entry in the Routing table.
	Example: `route destroy 1.1.1.1 255.0.0.0 10.0.0.0`

route create
`route create`
`<destination address>`
`<network mask>`
`<next hop><interface num>`
`<switch><value>`
	Enables the user to create an entry in the Routing table.
	Example: `route create 1.1.1.1 255.0.0.0 10.0.0.0 -I 1 -m 2231`

Rules

This group of commands enables the user to manipulate the data of the Port Rules table. For more information, refer to *Setting Up Security*, in Chapter 3, page 3-72.
Entering the `rules` command will display the following options:

- delete
- get
- set

Command / Syntax	Description
rules delete `rules delete <port>`	Enables the user to delete a specific bi-directional rule. Example: `rules delete 2`
rules delete all `rules delete all`	Enables the user to delete the entire port rules table. Example: `rules delete all`
rules get `rules get`	Enables the user to view the Rules table. Example: `rules get`
rules get `rules get`	Enables the user to view the Rules table. Example: `rules get`
rules set `rules set <in port><out port>`	Enables the user to set a specific bi-directional rule. Example: `rules set 2 5`

Send Arp Broadcast

This command enables the user to send an ARP broadcast. For more information, refer to *Configuring Router Settings*, in Chapter 3, page 3-55.

The syntax for this command is the following:
`send arp brdcst`

Set

This group of commands enables the user to set parameters.
Entering the `set` command will display the following options:

- all: All parameters to default
- baud: Baud Rate for the CLI
- ip
- logfile
- os
- private
- rea: Typing the `set rea` command displays an additional sub menu enabling the user to print the following:
  - stat: Typing the `set rea stat` command resets the REA counters.
- timeout
- trapecho

Smart NAT

This group of commands enables the user to manipulate the data of the Smart NAT tables. For more information, refer to *Smart NAT*, in Chapter 3, page 3-25.
Entering the `smartnat` command will display the following options:

- dynamic: The Dynamic NAT table
- mode: Smart NAT mode status
- static: The Static Smart NAT table

Command / Syntax	Description
smartnat dynamic get `smartnat dynamic get [router address] [NAT address]`	Enables the user to view the Dynamic Smart NAT table. Example: `smartnat dynamic get 1.1.1.1 10.1.1.1`
smartnat dynamic destroy `smartnat dynamic destroy <router address> <NAT address>`	Enables the user to delete an entry in the Dynamic Smart NAT table. Example: `smartnat dynamic destroy 1.1.1.1 10.1.1.1`
smartnat dynamic create `smartnat create <router address> <NAT address> -m <NAT mode>`	Enables the user to create an entry in the Dynamic Smart NAT table. The possible value for the NAT Mode field are the following: • 1 - Regular • 2 - Backup Example: `smartnat dynamic create 1.1.1.1 10.1.1.1 -m 1`
smartnat mode get `smartnat mode get`	Enables the user to view the Smart NAT Mode's status. Example: `smartnat mode get`

Smart NAT

Command / Syntax	Description
smartnat mode update `smartnat mode update <status>`	Enables the user to change the Smart NAT Mode's status. Example: `smartnat mode update enable`
smartnat static get `smartnat static get [local server IP] [router]`	Enables the user to view the Static Smart NAT table. Example: `smartnat static get 1.1.1.1 10.1.1.1`
smartnat destroy `smartnat static destroy <local server IP> <router>`	Enables the user to delete an entry in the Static Smart NAT table. Example: `smartnat static destroy 1.1.1.1 10.1.1.1`
smartnat create `smartnat create <local server IP> <router><NAT IP> -m <NAT mode>`	Enables the user to create an entry in the Static Smart NAT table. The possible value for the NAT Mode field are the following: • 1 - Regular • 2 - Backup Example: `smartnat static create 1.1.1.1 10.1.1.1 -m 1`

SNMP

This group of commands enables the user to manipulate the data of the SNMP tables. For more information, refer to *Setting Up Security*, in Chapter 3, page 3-72.
Entering the `snmp` command will display the following options:

- communty: The SNMP Community table. The possible switch values for the `snmp communty` are the following:
  - -o: Community Access
  - -t: Community Traps Enable
- rule: The SNMP Ports table. The possible port states for the snmp rule command are the following:
  - 1 - Accept
  - 2 - Ignore

Command / Syntax	Description
SNMP community get `snmp communty get [mng station address] [com string]`	Enables the user to view the SNMP Community table. Example: `snmp communty get 1.1.1.1 public`
SNMP community update `snmp communty update <mng station address> <com string> <switch><vakue>`	Enables the user to update an entry in the SNMP Community table. Example: `snmp communty update 1.1.1.1 public -o super`
SNMP community destroy `snmp communty destroy <mng station address> <com string>`	Enables the user to delete an entry in the SNMP Community table. Example: `snmp communty destroy 1.1.1.1 public`

SNMP

Command / Syntax	Description
SNMP community create `snmp community create <mng station address> <com string> <switch><vakue>`	Enables the user to create an entry in the SNMP Community table. Example: `snmp community create 1.1.1.1 public -o super`
SNMP rule get `snmp rule get [port number]`	Enables the user to view the SNMP Ports table. Example: `snmp rule get 1`
SNMP rule update `snmp rule update <port number> <port state>`	Enables the user to update an entry in the SNMP Ports table. Example: `snmp rule update 1 2`

Synattack

This group of commands enables the user to manipulate SYN attack data.

Command / Syntax	Description
synatack get `synattack get`	Enables the user to view the Timeout for SYN attack. Example: `synattack get`
synatack update `synattack update <value>`	Enables the user to update the Net Attack. Example: `synattack update 5`

TFTP

This group of commands enables the user to manipulate the data of the TFTP tables. For more information, refer to *Configuring Via File*, in Chapter 3, page 3-89**.**
Entering the `snmp` command will display the following options:

- fromdev: The Configuration file From Device data.
- todev: The Configuration file To Device data.

Command / Syntax	Description
TFTP from device get `tftp fromdev get`	Enables the user to view the TFTP from device data. Example: `tftp fromdev get`
TFTP from device update `tftp fromdev update <config file> <TFTP server>`	Enables the user to update the TFTP from device data. Example: `tftp fromdev update "file" 25.0.0.0`
TFTP to device get `tftp todev get`	Enables the user to view the TFTP to device data. Example: `tftp todev get`
TFTP to device update `tftp todev update <config file> <TFTP server>`	Enables the user to update the TFTP to device data. Example: `tftp todev update "file" 25.0.0.0`

Tune

This group of commands enables the user to manipulate Device Tuning option.
Entering the `tune` command will display the following options:

- arptbl: Arp Table
- brgfftbl: Bridge FFT Table
- clnttbl: Client Table
- dyntbl: Dynamic Proximty Table
- ipfftbl: IP FFT Table
- routtbl: Routing Table

Command / Syntax	Description
tune ARP table get `tune arptbl get`	Enables the user to view the Tune ARP Table. Example: `tune arptbl get`
tune ARP table update `tune arptbl update <table size>`	Enables the user to update the ARP Table size. Example: `tune arptbl update 2048`
tune bridge FFT table get `tune brgfftbl get`	Enables the user to view the Tune Bridge FFT Table. Example: `tune brgfftbl get`
tune bridge FFT table update `tune brgfftbl update <table size>`	Enables the user to update the Bridge FFT Table size. Example: `tune brgfftbl update 2048`
tune client table get `tune clnttbl get`	Enables the user to view the Tune Client Table. Example: `tune clnttbl get`

Tune

Command / Syntax	Description
tune client table update `tune clnttbl update <table size>`	Enables the user to update the Client Table size. Example: `tune clnttbl update 20000`
tune dynamic proximity table get `tune dyntbl get`	Enables the user to view the Tune Dynamic Proximity Table. Example: `tune dynamic Proximity tbl get`
tune dynamic proximity table update `tune dyntbl update <table size>`	Enables the user to update the Dynamic Proximity Table size. Example: `tune dynamic Proximity tbl update 1`
tune IP FFT table get `tune ipfftbl get`	Enables the user to view the Tune IP FFT Table. Example: `tune ipfftbl get`
tune IP FFT table update `tune ipfftbl update <table size>`	Enables the user to update the IP FFT Table size. Example: `tune ipfftbl update 8000`
tune router table get `tune routtbl get`	Enables the user to view the Tune Router Table. Example: `tune routtbl get`
tune router table update `tune routtbl update <table size>`	Enables the user to update the Router Table size. Example: `tune routtbl update 512`

Unset IP OSPF Debug

This command enables the user to reset the IP OSPF Debug data.
The syntax for this command is as follows:
`unset ip ospf debug <flag name>`
The possible flags for the `unset ip ospf debug` command are the following:

- hello
- dd
- req
- lsu
- ack
- build_lsa
- run_spf
- tx_lsa
- rx_lsa
- trap
- timer
- trans
- packet
- mem
- general
- error
- rx_all: Group Flag
- all: Group Flag

Example: `unset ip ospf debug hello`

VIP

This group of commands enables the user to manipulate the Mapped and Virtual IP Tables. For more information, refer to *Creating Virtual IP Addresses*, in Chapter 3, page 3-22.
Entering the `vip` command will display the following options:

- mapped: The Mapped IP Table
- virtual: The Virtual Ip Table. The possible values for the Mode field are as follows:
  - 1 - Regular
  - 2 - Backup

Command / Syntax	Description

VIP mapped get
`vip mapped get`
`[virtual ip]`
`[firewall ip]`
	Enables the user to view the Mapped IP table.
	Example: `vip mapped get 1.1.1.1 2.2.2.2`

VIP mapped update
`vip mapped update`
`<virtual ip>`
`<firewall ip>`
`<firewall NAT ip>`
	Enables the user to update an entry in the Mapped IP table.
	Example: `vip mapped update 1.1.1.1 2.2.2.2 3.3.3.3`

VIP mapped destroy
`vip mapped destroy`
`<virtual ip>`
`<firewall ip>`
	Enables the user to delete an entry in the Mapped IP table.
	Example: `vip mapped destroy 1.1.1.1 2.2.2.2`

VIP mapped create
`vip mapped create`
`<virtual ip>`
`<firewall ip>`
`<firewall NAT ip>`
	Enables the user to create an entry in the Mapped IP table.
	Example: `vip mapped create 1.1.1.1 2.2.2.2 3.3.3.3`

VIP

Command / Syntax	Description
VIP virtual get `vip virtual get [virtual ip]`	Enables the user to view the Virtual IP table. Example: `vip virtual get 25.1.1.1`
VIP virtual update `vip virtual update <virtual ip> -m <mode>`	Enables the user to update an entry in the Virtual IP table. Example: `vip virtual update 25.1.1.1 -m 1`
VIP virtual destroy `vip virtual destroy <virtual ip>`	Enables the user to delete an entry in the Virtual IP table. Example: `vip virtual destroy 25.1.1.1`
VIP virtual create `vip virtual create <virtual ip> -m <mode>`	Enables the user to create an entry in the Virtual IP table. Example: `vip virtual create 25.1.1.1 -m 2`

VLAN

This group of commands enables the user to manipulate the SSD VLAN table data. For more information, refer to *Setting Up a VLAN*, in Chapter 3, page 3-12.

The possible Switch Values for the `vlan` command are the following:

- -a: Auto Configure
- -t: Type
- -ta: VLAN Tag
- -p: Priority

The possible Values for the Protocol field for the `vlan` command are the following:

- other
- IP
- swVLAN

Command / Syntax	Description
VLAN get `vlan get [interface number]`	Enables the user to view the specified SSD VLAN interface data. Example: `vlan get 100000`
VLAN update `vlan update <interface number> <switch><value>`	Enables the user to update the specified SSD VLAN interface data. Example: `vlan destroy 100000 -a active`
VLAN destroy `vlan destroy <interface number>`	Enables the user to delete the specified SSD VLAN interface data. Example: `vlan destroy 100000`
VLAN create `vlan create <interface number> <protocol> <switch><value>`	Enables the user to create a new SSD VLAN interface. Example: `vlan create 100000 ip -t regular`

VLAN

Command / Syntax	Description
VLAN switch help list `vlan help <switch>`	Enables the user to view an online help for the VLAN command. Example: `vlan help -t`

VLAN Port

This group of commands enables the user to manipulate the SSD VLAN Port data. For more information, refer to *Setting Up a VLAN*, in Chapter 3, page 3-12.
The possible Switch Values for the `vlanport` command are the following:

- -t: Port Tag

Command / Syntax	Description
VLAN port get `vlanport get [interface number] [port interface number]`	Enables the user to view the specified vlan interface port data. Example: `vlanport get 100001 4`
VLAN port update `vlanport update <interface number> <port interface number> <switch><value>`	Enables the user to update the specified vlan interface port data. Example: `vlanport update 100001 4 -t tag`
VLAN port destroy `vlanport destroy <interface number> <port interface number>`	Enables the user to delete the specified vlan interface port data. Example: `vlanport destroy 100001 4`
VLAN port create `vlanport create <interface number> <port interface number> <switch><value>`	Enables the user to create a new vlan interface port. Example: `vlanport create 100001 4 -t untag`
VLAN port switch help list `vlanport help <switch>`	Enables the user to view an online help for the vlanport command. Example: `vlanport help -t`

APPENDIX d

Software License Upgrade

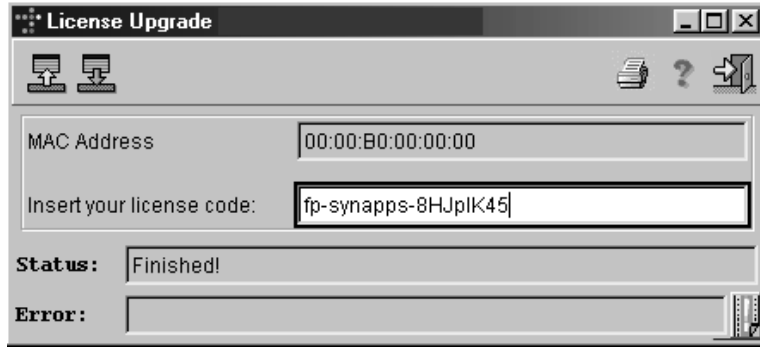
This appendix describes software license upgrade. Radware releases updated versions of FireProof software that can be uploaded to your device using the following procedures:

- **To upgrade the software license using Configware**, page D-2.
- **To upgrade the software license using ASCII commands**, page D-3.

The following procedures explain how to upgrade your software via Configware or ASCII CLI.

☞ **To upgrade the software license using Configware:**

1. Access Configware.
2. From the **Device** menu, select **License Upgrade**. The *License Upgrade* dialog box is displayed, as shown below. The old license number is displayed in the **Insert your license code** field.



3. Enter your new license code, located on your CD case, in the **Insert your license code** field.
   Note: The license code is case sensitive.

4. Click **Set**. The *Reset the Device* window is displayed. You must reset the device in order to validate the license.

Reset the Device
In order for the license to be valid, the device must be reset.
NOTE: If you choose to perform this later, please remember to
reset the device and then close and reconnect to the ConfigWare.
O.K
Cancel
Error:

5. Click **OK** to perform the reset. The reset may take a few minutes. A success message is displayed on completion.

The following procedure enables you to upgrade your software license using the ASCII CLI.

☞ **To upgrade the software license using ASCII commands:**

1. In the command line interface, type `license get`.
2. Click **Enter**. The current license code is displayed.
3. Type `license set + <new license code>`.
4. Click **Enter**. A license updated message is displayed in the command line.
   Note: In order for the upgrade to be implemented, the device must be reset.
5. Type `quit` in order to reset the device, then type yes to confirm the reset.

GLOSSARY

Advanced Monitoring and Statistics

FireProof provides various statistics, including current firewall load and number of attached clients per firewall, enabling unique monitoring and utilization of the firewalls. The Client Table is dynamic, containing the current active users and their connection time. Traps are initiated in case of special events.

Application Health Monitoring

FireProof allows the monitoring of firewall application status, for improved fault tolerance. Application failures can occur even when the firewall machine is up. FireProof can detect these failures and redirect the clients to another firewall.

Backup Firewall Configuration

FireProof allows the configuration of any firewall as backup. FireProof will not redirect clients to the backup firewalls unless all the regular firewalls are inactive. When several backup firewalls are configured, the load is balanced between them, similar to the load-balancing of the regular firewalls.

BootP

For easy installation, FireProof is a BootP client. A BootP server on the network will automatically configure the site dependent parameters of the FireProof when it is first connected to the network and powered up, readying your unit for SNMP configuration.

In addition, FireProof is a BootP relay, relaying BootP requests to remote networks.

Bridging

FireProof is a fully functional transparent bridge. Bridging occurs at full wire speed and extremely low latency is maintained.

Configuration File

The Configuration File feature allows you to transfer entire device configurations via SNMP, offering easy updating to new software versions supplied by Radware. This feature also enables instantaneous application of many parameter changes by allowing you to upload the configuration file, make all the desired parameter changes, and download the complete file to FireProof. You can also keep a library of past configurations.

Connectivity

FireProof supports one port with both a 10BaseT and an AUI interface; and one or three ports for connection to firewalls - one port with both 10BaseT and AUI interface, and the other two ports with only 10BaseT interfaces. The Fast Ethernet platform supports connections of two or four 100BaseT ports. The Application Switch platform supports connections of eight to ten 100BaseT ports and two 1000BaseSX ports.

Connectivity Rules

You can create rules for port connection so that traffic entering a certain port always exits via a specified port. For example, you can create a rule whereby traffic entering port 1 always exits via port 2. This enables the creation of two virtual FireProofs within one device, or four in 4 port devices, or eight in 8 port devices.

Customized Agent Support

Customized agents can now be created on individual firewalls, providing the network manager with greater flexibility when configuring a load-balancing scheme. The network manager can define a customized index for the balancing scheme using two additional load-balancing parameters. FireProof receives the index for its load-balancing algorithms from each firewall using Simple Network Management Protocol (SNMP).

Diagnostics

FireProof includes LED diagnostic indicators, which provide instant information about the unit and the interface status.

Unit LEDs: ON (power on) and System OK.

Interface-specific LEDs: ON (proper connection) and ACT (current traffic load).

Dynamic NAT

You use Dynamic NAT to avoid return delivery problems that can occur when using FireProof to load-balance among multiple transparent traffic forwarders and multiple address ranges, while performing NAT for an internal network. Should one of the address ranges become unavailable, return traffic from the internal network will be assigned a NAT address in one of the other address ranges, ensuring packet delivery.

Extended Health Monitoring

FireProof can check the health of network elements beyond a firewall, checking both the firewall itself and the availability of the network on the other side. If the network is not reachable, FireProof stops forwarding traffic to the specified firewall.

FireProof Redundancy

An additional FireProof allows for FireProof redundancy and ensures full fault tolerance with no single point of failure. The backup FireProof device monitors the primary FireProof through the network, implying immediate detection of network failures. The user can configure the failure overcoming time.

Firewall Grouping

You can set-up a policy list in FireProof to govern which firewall(s) to use according to the traffic type. You can define firewall groups according to the destination subnet of the traffic, the source subnet of the traffic, and/or the application type of the traffic.

Firewall Recovery Period

Each of the firewalls can be configured with a recovery and a warm-up period. When the firewall goes up, no clients will be directed to it during its recovery. After recovering, clients are sent to the firewall at an increased rate during the configured warm-up period. Only then, the firewall becomes fully operational.

IP Interface

An IP interface on FireProof is comprised of 2 components: an IP address and an associated interface. The associated interface can be a physical interface or a virtual interface (VLAN). IP routing is performed between FireProof IP interfaces, while bridging is performed within an IP interface that contains an IP address associated with a VLAN.

IP Routing

FireProof offers IP routing, which is compliant with RFC1812 router requirements. This allows the dynamic addition and deletion of IP interfaces. IP routing occurs at full wire speed and extremely low latency is maintained.

The IP router supports RIP I, RIP II and OSPF. OSPF is an intra-domain IP routing protocol, intended to replace RIP in larger or more complex networks. OSPF and its MIB are supported as specified in RFC 1583 and RFC 1850, with various limitations.

The various routing protocols can access each other's direct Routing Tables for routing information, allowing packets to "leak" between routing protocols.

Large Client Table Size

The FireProof Client Table is limited only by the specific memory size of the unit. There is a default limit to the amount of entries that can be made in the Client Table, but this can be adjusted using tuning facilities included in FireProof.

Load-Sharing

Sophisticated load-sharing algorithms distribute the load among multiple firewalls. The firewall administrator can choose one of the included load-sharing algorithms, taking into account the firewalls' processing powers. By assigning priority to the firewalls, more traffic can be diverted to stronger firewalls, optimizing the usage of data flow.

Management and Configuration

FireProof is SNMP-compliant (RFC1213, RFC1253, RFC1286, RFC1354, RFC1389, RFC1493, RFC1525, RFC1573, RFC1850, Radware enterprise MIB.) and can be managed by any SNMP-based management station, including Configware - Radware's SNMP-based management stations. MultiVu is available on the HP OpenView, Solaris, as well as the HP OpenView for Windows platform. Configware runs directly on Windows.

FireProof software is stored in FLASH memory, allowing updates to be conveniently sent to the unit via TFTP. Almost all FireProof parameter changes are implemented immediately, without the need to reset the unit, unless the Configuration File feature is enabled.

Mirroring

Redundant units mirror one another's Client's Tables, so that when one device fails, clients are entirely unaffected when the second device takes over.

Native Windows NT™ Resources Agent Support

The Windows NT operating system has a built-in server utilization monitoring module that is fully supported by Radware's FireProof. By taking into account the parameters of the NT module, the actual firewall load is reflected in parameters, such as CPU utilization, average response time, and so on.

FireProof can be configured to poll these parameters and incorporate them in the load-balancing scheme. This way, the balancing scheme is customized according to actual firewall load and no additional software is required for the NT servers.

Physical Interface

One of the actual Ethernet ports of FireProof. FireProof can have either 2 or 4 physical interfaces, depending on the hardware configuration.

Physical IP address

An IP address assigned to a FireProof interface. This address belongs to FireProof and is used for SNMP management and/or routing purposes.

Session Balancing Modes

FireProof offers four options for the distribution of sessions between a client IP and a destination IP. The default configuration regards all the sessions opened by a client to the same destination as a single session, for best performance. For more accurate load-balancing, all the sessions opened by the same client's application to the same destination are counted together. For even more accurate load-balancing, each session opened by the client's to the same destination is counted separately. The last option offers balancing of the client's sessions between the firewalls. This option should be used cautiously.

Smooth Firewall Shutdown

FireProof allows the definition of a smooth firewall shutdown procedure. If this is activated new clients will not be directed to this firewall until existing clients complete their sessions (i.e., until the Client Table is empty). Then the firewall can be shutdown in an orderly manner.

SNMP Port Restrictions

SNMP provides its own inherent security mechanism through the use of the Community Table. Although, SNMP Community Tables provide security, extra provisions may be necessary, especially given FireProof's role in providing overall network security.

FireProof provides additional security by allowing you to restrict which physical ports accept SNMP messages. By restricting SNMP access to specific ports, you can limit access to FireProof management to those areas on the network where authorized users are likely to reside.

Static NAT

You use Static NAT to ensure delivery to a particular server on the internal network. For example, if you have a server on the internal network that accepts the majority of the incoming connections, you may want to define a static NAT address on the FireProof so that all incoming traffic to this address is delivered to the server. Likewise, FireProof will use this NAT address when transferring outbound traffic from this server.

In addition, when using FireProof to load-balance among multiple transparent traffic forwarders and multiple address ranges, you can assign multiple Static NAT addresses to the internal server, e.g., one for each address range.

SYSLog Support

The FireProof can send SYSLog messages to any server of this kind to ensure smooth integration of FireProof message logging with existing network management tools.

Tune Table

A Tune Table allows the user to determine the relative sizes of the Routing Tables, Client Tables, Bridge Tables, and others.

Virtual Interface (VLAN)

A collection of physical interfaces. A VLAN is defined by its protocol. Bridging for the defined protocol is performed between the ports that belong to a VLAN. In the case of IP, bridging is performed within a VLAN on the IP address assigned to that VLAN. For example, if an IP VLAN contains physical interfaces 1, 2, and 4 and is given an IP address of 192.1.1.1 (with subnet mask 255.255.255.0), bridging is performed for IP network 192.1.1.0 between FireProof ports 1, 2, and 4.

Virtual IP Support

FireProof allows you to balance firewalls that use NAT addresses. This is accomplished by creating a virtual IP address that is mapped to the firewall NAT addresses. Traffic destined for the virtual IP is redirected to the appropriate firewall according to the configured load-balancing algorithm.

VLAN Types

Two types of IP VLANs are commonly encountered when configuring a FireProof. Either VLAN can be used depending on the FireProof configuration requirements. Refer to Chapter 1, page 1-4 for more details on VLANs used in the new platform.

- *Regular* - A Regular VLAN provides transparent bridging within the VLAN. This means that when two stations communicate within the VLAN, they are aware of each other's MAC addresses. If stations A and B are on two different FireProof ports that belong to the same VLAN, during communication A knows B's MAC address and B knows A's address.

- *BroadcastAndUnicast* - This is a special VLAN which allows bridging using standard proxy ARP techniques. Stations on one VLAN port of the FireProof believe that all stations on other FireProof ports belonging to this VLAN have the same MAC address. This one MAC address is actually the MAC of FireProof. It is necessary to use BroadcastAndUnicast VLAN type in FireProof configurations to enable load balancing, and to ensure that packets are sent to the MAC address of the FireProof during end station to firewall communications.

Note: VLAN redundancy is available only in Regular VLAN mode.

INDEX

A

About This Guide IX
AC Power Connection 2-3
Active Policies 3-99
Adding Devices to ConfigWare 3-3
Adjusting Operating Parameters 3-56
Advanced Monitoring and Statistics G-1
Application Grouping with FireProof A-19
Application Health Monitoring G-1
Application Security A-29
ARP Addresses 3-69
ASCII Terminal (Serial) Connection 2-3
ASCIICommand Line Interface C-1

B

Backup Firewall Configuration G-1
Bandwidth Management A-25
Bi-directional Configuration A-11
BootP G-2
Bridging G-2
Bandwidth Management 3-96
Bridge Forwarding Nodes 3-76
Bridge Operating Parameters 3-75
BWM 3-96

C

Checking the Contents 2-2
Changing Community Names 3-79
Configuring a Remote Virtual IP Address 3-51
Configuring Application Aging 3-32
Configuring Bridge Settings 3-75
Configuring Dynamic Smart NAT 3-27
Configuring FireProof 3-1
Configuring Firewall Grouping 3-34
Configuring Firewalls 3-20
Configuring Interface Parameters 3-57
Configuring IP Router Redundancy 3-47
Configuring Management Station Access 3-72
Configuring Mirroring 3-49

Configuring One Trap 3-88
Configuring Polling 3-78
Configuring Router Settings 3-55
Configuring Service Parameters 3-78
Configuring Static NAT 3-25
Configuring Via File 3-89
Configuring VLAN Parameters 3-14
Connecting to a Device 3-7
Controlling Traffic to Newly Booted Firewalls 3-39
Creating Rules for Port Connection 3-31
Creating Virtual IP Addresses 3-22
Creating VLANs 3-13
Configuration File G-2
Configuring the IP Host Parameters 2-5
Configware Software Installation 2-11
Connecting FireProof to Your Network 2-3
Connectivity G-2
Connectivity Rules G-3
Customized Agent Support G-3

D

Defining Load-Balancing Algorithms 3-52
Defining the Number of Retrievable Entries 3-41
Device Tuning 3-86
Diagnostics G-3
DMZ Support with Port Connectivity Rules A-17
Dynamic NAT G-3

E

Element Statistics 4-2
Example Configurations A-1
Extended Health Monitoring G-4
Event Log 3-8

F

Full Path Health Monitoring 3-38
FireProof Redundancy G-4
FireProof Specifications and Requirements 2-9
Firewall Grouping G-4
Firewall Recovery Period G-4

G

Getting Device Information 3-81
Getting Started 3-2
Global Configuration 3-41

H

Hardware (Application Switch Platform) 2-9
Hardware (Fast Ethernet Platform) 2-9
Hardware Requirements 2-10

I

Installing FireProo 2-1
Introducing FireProof (FP) 1-1
The Problem 1-2
The Solution 1-2
IP Interface G-5

IP Interface Statistics 4-9
IP Routing G-5

L

LAN Connections 2-4
LANInterfaces (Application Switch Platform) 2-10
LANInterfaces (Fast Ethernet Platform) 2-9
Large Client Table Size G-5
Load-Sharing G-6

M

Management and Configuration G-6
Mirroring G-6
Monitoring FireProof Performance 4-1
Mounting the Device 2-2
Mapping NAT Addresses to Virtual IP Addresses 3-24
Modifying Differentiated Services 3-110
Modifying Networks 3-104
Modifying Policies 3-100
Modifying Services 3-105

N

Native Windows NT™ Resources Agent Support G-6
Network Design 1-3
No NATConfiguration 3-29

O

One Leg (Lollipop) Configuration A-6
OSPF Area Parameters 3-65
OSPF Interface Parameters 3-63
OSPF Link State Database 3-66
OSPF Neighbor Table 3-67
OSPF Protocol Parameters 3-61

P

Physical Interface G-7
Physical IP address G-7
Policy Statistics 4-13
Port Statistics 4-15
Physical Route 3-68

R

Refreshing Zoom View 3-8
Resetting the Device 3-83
RIP Interface Parameters 3-60
RIP Protocol Parameters 3-58
Running Configware 3-2

S

Safety Instructions III
Session Balancing Modes G-7
Simple FireProof Configuration A-2
Smooth Firewall Shutdown G-7
SNMP Port Restrictions G-8
Setting Device Global Parameters 3-84
Setting Global Parameters 3-96
Setting Interface Addresses and IP Router Options 3-16
Setting Physical Port SNMP Restrictions 3-73
Setting Up Application Security 3-92
Setting Up Security 3-72
Setting-Up a VLAN 3-12
Setting-Up Application Grouping 3-36

Setting-Up Destination Grouping 3-34
Setting-Up Firewalls 3-19
Setting-Up Redundant FireProof Devices 3-46
Setting-Up Source Grouping 3-35
Smart NAT 3-25
Standalone 3-2
Software License Upgrade D-1
Software Requirements 2-10
Static NAT G-8
SYSLog Support G-8
Syslog Reporting 3-79

T

Troubleshooting B-1
Tune Table G-9
Typical FireProof A-8

U

Updating Software 3-113
Using Buttons 3-3

V

Viewing Active Clients 3-40
Viewing Differentiated Services 3-110
Viewing Interface Parameters 3-82
Viewing Traps 3-8
Virtual Interface (VLAN) G-9
Virtual IP Support G-9
VLAN Configuration A-4
VLAN Types G-10

W

Web-Based 3-3
Windows NT Load-Balancing 3-52

Z

Zoom View 3-8

Configware Action Buttons Index

Adding Ports to VLAN

Browse

Cancel

Cancel

Close Screen

Control Panel

Convert files

Delete

Delete All

Delete Data Files

Edit

Edit Default Policy

Edit Device List

Error Log

Full Path Health Monitor

Generate Graph

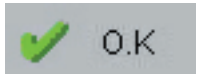
Help

Insert

Left Arrow

Configware Action Buttons Index

radware



OK

Opens Mapped Table

Perform

Print

Properties

Refresh

Return to Last Graph

Right Arrow

Save

Set

Show Graph

Start Data Collection

Stop Data Collection

Undo

Update